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Aims and Scope

The Economic and Financial Review is published four times a year in March, June, September and December by the Research and Statistics Department of the Central Bank of Nigeria. The Review contains articles on research undertaken at the Bank, in particular, and Nigeria, in general, mainly on policy issues both at the macroeconomic and sectoral levels in the hope that the research would improve and enhance policy choices. Its main thrust is to promote studies and disseminate research findings, which could facilitate achievement of these objectives. Comments on or objective critiques of published articles are also featured in the review. *The views and interpretation contained in the articles published in the Review are those of the authors and do not necessarily represent the views and policies of the Central Bank of Nigeria.*

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CONTENTS

The Informal Sector and Employment Generation in Nigeria
A. S. Atoloye … … … … … … … … … … 1

Issues in Nigeria's Transport Data for Planning and International Comparison
G. T. Arosanyin (Ph.D)... … … … … … … … … 45

Tariff and Factor Allocation in a Small Open Economy: Nigeria
D. T. Busari and E. A. Udeaja... … … … … … … … 73

REVIEW/COMMUNICATIONS

The Industry Effects of Monetary Policy in the Euro Area by Gert Peersman and Frank Smets Vol. 115, No. 503, April 2005.
O. Adenuga … … … … … … … … … … 99

Effect of Financial Globalization on Developing Countries: Some Empirical Evidence by Eswar S. Prasad et al in IMF Occasional Paper No. 22, 2003.
Margaret Johnson-Hilili... … … … … … … … … 107

The Informal Sector and Employment Generation in Nigeria

A. S. Atoloye*

I Introduction

One of the major strands of the millennium development goals (MDGs) for global eradication of poverty is employment generation, which is also in tandem with one of the issues in Nigeria's current economic development programme, the National Economic Empowerment and Development Strategy, otherwise known as NEEDS. As part of the programme's title indicates, economic empowerment is a major focus of NEEDS, and apart from education, the second most important form of empowerment that a state could bestow on its citizens is to guarantee gainful employment. The issue of employment generation in the context of current efforts at alleviating poverty, internationally and domestically, cannot, therefore, be overemphasized

But it is not enough to identify employment generation as a policy thrust to empower the people, and in the process tackle poverty headlong, it is equally important to address the how and where of employment and how much of it needs to be adequately generated to satisfy the yearnings of the unemployed masses. This is where the private sector, as the prime mover of the global economy becomes more relevant than the public sector, and why the informal sub-sector, in the context of developing countries, comes to the forefront in the whole arrangement.

Prior to the industrial revolution, agriculture and informal business arrangements dominated the global economy, and unemployment was not a subject of major concern since mechanized farming was not in vogue, and industrialization was still at its infancy. However, the nature and status

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of labour employment have changed completely since the advent of the industrial renaissance and the increasing trend in urbanisation, with the attendant changes in economic structure, system of production, and entrepreneurship.

For a start, the picture that is clearly painted in the current global economic setting is that, ceteris paribus, the level of unemployment moves at variance with the level of economic development. In other words, the less developed an economy is, the more unemployment problem it faces, since the level of industrialization, to a large extent, also determines the level of economic development. Interestingly, by the same token, empirical evidence has revealed that the less industrialized an economy is, the more its activities revolve around the public sector and also the more informal is the private sector, for very obvious reasons.

Consequently, to the extent that developing economies are driven by the public sector and the informal sub-sector of the private sector, to the same extent will the onus of employment generation lie on these segments of the economy, but moreso on the latter. This is so, because, there is a limit to the employment opportunities that the public sector can offer to the mass unemployed. What this translates to, therefore, is that the unemployed that are left out of the formal private sector would need to adjust themselves to the popular axiom, “Everyman unto himself, and God for us all”; in other words, let everyone fend for himself; a picture that the informal business sector appears to be painting.

Efforts at employment generation in Nigeria are by no means recent, as policies have been enunciated in the past in this direction, especially with regard to self-employment. This is in recognition of the social and cultural makeup of the people, including the limited capacity of the public sector to satisfy the employment demands of the population of educated and highly skilled Nigerian labour. The pertinent question then becomes: how adequately has the incontrovertible role of the informal sub-sector been spelt out for employment generation in the NEEDS programme.

What this paper attempts to do is to bring the issues of employment generation in the NEEDS programme and the informal sector into sharper focus. The objective of the paper, therefore, is to assess how far the NEEDS programme has positioned the informal sector of the Nigerian economy, which constitutes the larger segment of the economy in playing the catalytic role of poverty eradication in Nigeria, and to explore the possibility of repositioning the sector to benefit more from the target employment under the programme. It will also highlight the appropriate constructs that will be needed to bridge the identified gap between laudable intentions as contained in the programme and similar policy thrusts, and their implementation. In this regard, the rest of the paper is in six sections. Section 1 contains the literature review, and uses available official data to establish whether or not the informal sector is a peculiarity of under-development. Section 2 highlights the historical dimensions and characteristics of Nigeria's informal sector, while Section 3 reviews the prospects for employment generation in the informal sector under the NEEDS programme. In Section 4, the paper appraises the performance of the NEEDS programme within the context of employment generation and poverty reduction policies in Nigeria in the first two years of the programme, i.e. 2004 and 2005. Section 5 considers the legal, regulatory and policy frameworks that should be in place to address the employment challenges in the informal sector that emanating from the analyses in Section 4. Section 6 concludes the paper.

II Literature review

Theory of Employment

At the macro level, employment refers to the application of the factors of production to efforts that will generate income for the welfare of the citizens. Indeed, it is in that process that employment of labour at the sub-macro (micro) levels by the diverse economic agents is engendered. Consequently, any change in the quantum, mix, and nature of combining these factors of production at the macroeconomic level, *ceteris paribus,* also translates to changes in the same direction in the combination and condition of employment of labour at the micro level.

In John Keynes' *The General Theory of Employment, Interest and Money,* the great Economist postulates that the national income depends on the volume of employment, i.e. on the quantity of effort currently devoted to production, and there is a unique correlation between the two. In addition, a state of full employment is achieved by an economy when all its resources have been appropriated to the fullest and economic activities are in a stable condition, so that a shift in the dependent variables results in unstable conditions and/or reduced level of real income. However, evidence indicates that full or even approximately full employment is of rare and short-lived occurrence. Until then, additional increases in and different combinations of the factors of production are possible efforts to attain a full employment condition. In other words, there will always be an inducement to push the rate of new investment to the point which forces the supply-price of each type of capital-asset to a figure which, taken in conjunction with its prospective yield, brings the marginal efficiency of capital in general to approximate equality with the rate of interest, and changes in the rate of consumption will move in the same direction (though smaller in amount) as changes in the rate of income.

In the same vein, if we assume (as a first approximation) that the employment multiplier is equal to the investment multiplier, we can, by applying the multiplier to the increment or (decrement) in the rate of investment, infer the increment of employment, as long as the value of output will rise when employment increases even if the wage-unit and prices are unchanged.

In formulating the general theory of employment, some existing or available factors are taken as given, but this does not mean that these factors are assumed to be constant; but merely that, the effects and consequences of changes in them are not taken into consideration or into account, for now. They influence the independent variables, but do not completely determine them. The independent variables, in the first instance, are the propensity to consume, the schedule of the marginal efficiency of capital and the rate of interest. The dependent variables are the volume of employment and the national income (or national dividend) measured in wage-units. This can be shown in the form of simple equation as:

Y = C + I + G, *where Y is national income; the dependent variable and the independent variables C= consumption; I=investment outlay and G= government expenditure.*

This equation indicates to us the quantity of employment that will be devoted to production corresponding to any given level of effective demand measured in terms of wage-units. Consequently, they furnish us with the supply function of labour (or effort); so that they tell us inter-alia at what point the employment function for labour as a whole will cease to be elastic.

The Informal Sector – The term "informal sector" was first used in 1971 by the British anthropologist Keith Hart in a study on Ghana, and was subsequently taken up by the International Labour Organisation, (ILO) in later study on Kenya. The name was adopted particularly in relation to development and employment policies, but its meaning and scope still remain controversial. It has also been referred to in many early studies as "under the table" to conform to an English idiom, or the "traditional sector" in relation to the traditional forms of work and production. The acronym, "black market", is often used for some specific subsets of the informal economy in which contraband or illegal underground trading takes place. In the 1990s many scholars started to use the term "informal economy" to refer to a broader concept that includes enterprises, as well as employment in developing, transition and advanced economies.

However, the sector is difficult to observe, study and measure, as it is temporal in nature. Indeed, the nature, the degree of enforcement and frequency of change in regulations could make the difference between the formality and informality of some types of enterprises. For instance, in one of the most influential books on the informal sector, Hernando de Soto in *El Otro Sendero* (1986), published as *The Other Path* in English, argue that excessive regulation in the Peruvian (and other Latin American) economies forced a large part of the economy into informality and, thus, prevented economic development. In addition, the characteristics of the informal sector are not universal as there are many different "informal sectors" showing different levels of productivity, labour employment,

remuneration and organization. Its heterogeneity and complexity has also made it difficult to reach an international consensus on its definition. For instance, the distinction between legal and illegal aspects of the sector such as prostitution, drug trafficking, the sale of stolen goods, contraband and the production and sale of pirated goods is not so clear, or easy to differentiate. Nonetheless, the ILO defines the urban informal sector as " a range of economic units in the urban areas, which are mainly operated by individuals either alone or in partnership with members of the same household (family self-employment) and which employ one or more employees on a continuous basis in addition to the unpaid family worker and/or casual employee".

Typically, these units operate on a small scale (micro business), with a low level of organization skill and little or no division between labour and capital. They are engaged in the production and distribution of goods and services with the main objective of generating employment and a basic income to the persons concerned. In addition, for statistical purposes, it is regarded as a group of production units which form a part, within the System of National Accounts (SNA), of the household sector as unincorporated enterprises owned by individuals. In this respect, household enterprises are not regarded as separate legal entities, and no complete set of accounts are available which could permit a clear distinction between the production activities of the enterprise and the other activities of their owners.

The organizational structure of the informal sector allows it to escape the rigidity of formal economic models, and it is capable of a very flexible response to changes in the market through indigenous changes in its overall pattern of economic activity. While for the most parts, the activities of the informal sector units are legal, they rarely comply with official and administrative requirements, as they are largely unregistered and evade paying relevant taxes. Nonetheless, their activities are often tolerated in recognition of the helplessness of government to improve their economic condition otherwise, as well as the inadequacy of the laws. Indeed, they have become a means for many countries to address the nagging problems of population growth, rural-urban migrations, economic crises, poverty and

indebtedness. Other common features of the sector include, labour-intensive technologies, high levels of competition, low quality of the goods and services produced, limited capital and limited capacity for accumulation. The main source of capital is from self-financing due to restricted access to assets, credits and other services.

Is the Informal Sector a Peculiarity of Underdevelopment?

The definitions of the informal sector and the methodologies employed to measure it vary from region to region and country to country, because of variations in their nature and composition, making a comparative analysis difficult. In tracing the history of the sector, Wikipedia (2002), stated that "Archaeological and anthropological evidence strongly suggests that people of all societies regularly adjust their activity within economic systems in an attempt to evade regulations. Therefore, if informal economic activity is that which goes unregulated in an otherwise regulated system then informal economies are as old as their formal counterparts". The inference that could be readily drawn from this statement is simply that the informal sector is everywhere all over the globe, but its extensiveness may differ with levels of economic development. Turnham *et al*, (1990) shared this view in a study, when he submitted that the lower the level of development of a country, the larger its informal sector. In a seminal collection of articles on "The Informal Economy Studies in Advanced and Less Developed Countries", the existence of an informal economy in all countries was emphasized by including case studies ranging from New York City and Madrid to Uruguay and Colombia. Indeed, with the industrial revolution and subsequent change in the modes of production in the advanced developing countries, many workers were forced out of their formal sector work into informal employment.

The informal sector is estimated to employ close to between 30 and 80 per cent of the labour force in many developing countries by the late 1990s. In Asia, the sector absorbs between 40 and 50 per cent of the urban labour force, although significant variation can be found between the newly industrializing countries in the region (with less than 10 per cent) and countries where the sector's employment share is about 65 per cent. The

sector also makes up 48, 65 and 72 per cent of non-agricultural employment in North Africa, Latin America and sub-Saharan Africa, respectively, while the estimates for developed countries are around 15 per cent. In Latin America, the informal sector employment grew at an annual rate of 4.7 per cent compared to the 1.1 annual per cent growth of formal sector employment between 1990 and 1994.

Africa provides the most detailed example of the informal sector with an estimate of about 61 per cent of the urban labour force engaged in different forms of activities in the sector, and it was estimated that the sector will create 93 per cent of all additional jobs in the continent. In addition, the informal sector becomes larger if it is considered that the vast majority of employment in the rural setting is in agriculture and other agrarian production, which are mainly manual and labour-intensive. The largest proportion of the informal work force in Africa (70 per cent) is self-employed, or underemployed, while wage employment predominates in developed countries.

From all indications, it would appear that the informal sector is here to stay, at least for quite a long while. This is because the informalisation of a significant proportion of the workforce in countries with different levels of development, give strong reasons to believe that a large and growing proportion of workers will be engaged in the informal sector for many more years to come.

In many developing countries facing structural adjustment programmes, micro-enterprises in the urban informal sector make a significant contribution in generating employment and often constitute the main source of income for disadvantaged groups. The development of the informal sector is not a temporary phenomenon, which would disappear in the foreseeable future but on the contrary it is likely to continue to expand as is shown by its steady growth in almost all developing countries with the exception of the newly industrializing countries from East Asia. The sector will, therefore, continue to serve a complementary role in the economic development process, as well as an avenue for serving the basic needs of the people, if not in improving their standard of living. Furthermore,

the diminished relevance of national boundaries in the globalization arrangement has further pushed the structure of the informal sector. This include the search for cheap labour and for cost-efficient methods such as outsourcing and subcontracting to increase productivity and competitiveness in the developed countries.

Prospects of Employment Generation in the Informal Sector

The informal sector involves mainly unorganized workers engaged in precarious processes and labour arrangements in business, which in many cases are largely unregulated and unregistered, falling outside of state regulations and control. In addition, many formal wage-earners are also engaged in informal businesses as additional source of income to complement their stagnant, and sometimes, declining purchasing power, which maintain most of them under the poverty line.

The magnitude and growth of the sector are difficult to establish, as most of their activities are unrecorded in official statistics and, thus, the measurement of informal production and labour force is difficult. For instance, because of cultural factors and the nature of economic activities in developing economies, domestic labour, such as child care and cooking, is not included when performed in the natural course of daily living. Such activities could as well be performed for others in exchange for wages, or goods and services with economic value, which is the norm in more advanced economies. Nonetheless, it is incontrovertible that the sector constitutes an employment refuge for vast majority of workers who fall out from the formal sector, especially in times of economic depression, or rationalization in the public service. It provides a “safety net” for poor households’ income. It is the realm of employment for the majority of urban dwellers in developing countries who apply their energies in semi-skilled jobs. Employment opportunities are also created through apprenticeship in skills and knowledge in jobs that require little educational background, thus, placing the informal sector at the centre of economic development.

While formal firms optimize their operations when they substitute capital

for labour and strive to grow large enough to capture economies of scale, the informal sector entrepreneurs optimize when they substitute labour for capital and also strive to grow large enough to capture economies of scale. For that reason, the ILO has recognized the sector as a potential solution to unemployment problem in developing countries if the negative conditions of undercapitalization, lack of skills and small size can be reversed. While it cannot be argued that unemployment has become a sore economic point in most developing countries, the measurement of its magnitude leaves us with some doubts. This is so in the light of some underemployments, especially of some educated employees in the informal sector who consider themselves unemployed still, in view of their current menial jobs, which they regard at best as provisional and transitory, and at worst as shameless. To this extent, part of the informal sector measurement includes the area of "disguised unemployment", or a "reserve army of labour" that is either directly or indirectly tied to the formal sector through outsourcing or distribution channels, having none of the benefits or safeguards of formal employment.

III Historical Dimensions and Characteristics of Nigeria's Informal Sector

The informal sector in Nigeria, like in many African countries, has its roots in historical perspective, as much as it has in cultural dimensions. Prior to its colonization in 1896, there were splinters of intra-regional trade arrangements between the citizens of the traditional empires that existed at the time. Agricultural products, handicrafts, and other traditional products were some of the items of trade that were exchanged, at first through trade by barter, and later with the use of cowries, beads, cows and other forms of medium of exchange that were acceptable within the locality. Naturally, the traders, whether the small-scale direct sellers, or the middle-men that facilitated the intra-empire trade were mostly sole proprietors, or at best, small-scale partnerships with little capital, low entrepreneurial skills and lack of appropriate accounts being kept.

Unfortunately, even with the coming of the colonial powers and the advent of education, there has not been much change, for obvious reasons. The

colonial authorities were businessmen who were more concerned about how they could maximize their benefits from the spoils of colonization than on improving the lots of the people. Prior to independence, the structure of the economy was largely agrarian, while the manufacturing sector was deliberately underdeveloped to open doors for imports from Britain. However, this heritage has been maintained even after independence, because subsequent economic policies have failed to address this anomaly adequately, owing partly to the problem of vicious cycle of poverty. Low levels of savings and the attendant dearth of investment funds have stifled domestic investment, discouraged medium-scale enterprise and the expansion of small businesses.

The dominance of government in economic activities that are best managed by private enterprise did not support the drive for private sector-led economic activities, which should enhance domestic investment. As a result of long spate of political instability, inconsistent economic policies of government, and unconducive business environment, inflow of foreign investment over the last four decades has come in trickles, well below the level that is appropriate for an economy with a large and vibrant market and substantial economic potentials. In addition, the retrenchment of formal sector workers that followed as a consequence of the adoption of the Structural Adjustment Programme, SAP in 1986, and the increasing difficulty of prospective workers, especially graduates, to get jobs in the formal sector are additional factors that have made the informal sector to thrive in Nigeria in the last two decades

Consequently, the informal sector in Nigeria remains largely unquantifiable in terms of size, structure and character, so that its contribution to the national income and employment generation has continued to be mere guess work by economic analysts. Many studies have been conducted in an attempt to capture a vivid picture of this important segment of the national economy, which has the characteristics of a moving target. For instance, previous studies appeared to have given the sector more than its share of importance, as against a recent tripartite study, which revealed that, indeed, the contribution of the sector (excluding agriculture) to Nigeria's GDP in 1998 was only 7.2 per cent, and when agricultural

production is included, the figure was 37.8 per cent (CBN/FOS/NISER, 2001). Nonetheless, in terms of employment, agriculture alone, comprising crops, livestock, forestry and fishery, employs nearly 67 per cent of the labour force, and about 90 per cent of the rural population.

However, in view of the unpredictable nature and vast size of this sector, coupled with the constraints of data, it would be ill-advised to hold on to any figures as being sacrosanct, as further studies may reveal many yet unknown and/or unquantified sub-sectors. For instance, even for the sake of argument, it would be appropriate to ask how the data on employment and the national accounts statistics would be able to adequately capture and evaluate the operations of some underground activities, even if they are somewhat illegal in nature, or the do-it-yourself repairs on home appliances, the services of the housewife or housemaid, and the engagement of the rural farmer in other skills, etc. This is a pertinent issue raised by Charmes (1990) when he avers that the importance of the informal sector activities particularly in an agrarian economy cannot be over-emphasized, and that the poorer the country, the greater the underestimation of the level of its national product, and by extension the estimation of the level of employment in the sector.

Overall, the informal sector in Nigeria is highly labour intensive and, as expected, is dominated by small-size enterprises which are mostly sole proprietorships that employ less than 20 people, paying little to nothing in labour wages. Surplus labour, is therefore, good grounds for the growth of the informal sector, where labour intensive system of production is needed, as against capital equipments in the formal setup. In terms of gender distribution of labour, there is no definite outcome on gender dominance in any of the sub-sectors of the Nigerian informal sector, but culturally there are areas regarded as taboo or in effeminate for a woman to engage in, such as, taxi-cab driving, commercial motorcycle operation, etc.

A great proportion of the raw materials or inputs of the Nigerian informal sector are locally-sourced, but a low proportion of the profits are ploughed back to expand the business. There are also no incentives to encourage

public participation in medium-size enterprises in the sector, thus making the business remain unsuccessful. Prospects of forward and backward linkages, however, exist within the sector, as well as between some of the enterprises in the sector and those of the formal sector. Occupational hazards are taken for granted, and are not given serious consideration by operators in the sector or the regulators in the relevant areas of informal operations. For instance, some ad hoc surveys carried out by the ILO on Nigeria, among four other developing countries, indicate that labour hazards are prevalent in the informal sector, and these vary with occupation. Excessive heat, poor housekeeping, inadequate work space and working tools, lack of protective equipment, exposure to hazardous chemicals and dusts, which results in low productivity and income, due to poor health, and long hours of work, characterize the informal sector in Nigeria.

In the light of the economic and financial crises that Nigeria encountered over the years, the informal sector is expected to continue to provide the needed impetus for employment generation especially in the rural sector of the economy. In other words, the sector is expected to serve as a viable mechanics for the creation of jobs for the rural populace through additional incomes.

IV Prospects for Employment Generation in the Informal Sector under the National Economic Empowerment and Development Strategy (NEEDS)

The National Economic Empowerment and Development Strategy (NEEDS) is Nigeria's home grown medium-term economic development plan, which is an alternative to the traditional Poverty Reduction Strategy Paper, otherwise known as PRSP; one of IMF's requirements for supporting economic development programmes in developing countries. Nigeria's attempt at formulating a home-grown development programme is not new, as examples abound of countries that have ignored the policy advice of the Bretton Woods Institutions, yet attained appreciable economic success through conscious and committed implementation of their own economic policy strategies. For instance, the East Asian countries, especially Korea, Taiwan and Singapore made great economic development strides, not

because they listened to the Washington consensus to downsize and liberalize, but because they adopted their own domestic economic programmes.

The Main Thrusts of the NEEDS Programme

NEEDS proposes a contract between the Nigerian people and the government in the form of a social charter, or bargain. The programme empowers the people by tackling social exclusion head on, paying particular attention to generating jobs to improve incomes. It attempts to lay a solid foundation for diversifying the economy away from oil and solid minerals in order to increase economic stability and generate jobs. Since manufacturing is stagnant, there are few jobs for the growing urban population, and urban unemployment is currently estimated at 10.6 per cent. The focus of NEEDS is, therefore, economic empowerment, and creating about 7 million new jobs by 2007. The programme is expected to make it easy for private enterprises to thrive, by training people in skills relevant to their chosen business, and by promoting integrated rural development in collaboration with the states.

Its objectives are predicated on sustainable poverty reduction, employment generation, wealth creation and value reorientation, by mobilizing Nigeria's abundant resources, and ensuring that the strategies and impacts of the programme have positive bearings on the nation as a whole through the involvement of all stakeholders in its implementation. Consequently, the states and local government have also adopted their own version of NEEDS, called SEEDS and LEEDS, respectively, as their medium-term development road map.

The NEEDS aims at overcoming the identified deep and pervasive obstacles to progress, to make the economy the strongest in Africa, and one that will hold its own among the comity of nations. It will change the way government does its business, and evolve smaller, stronger, better skilled and more efficient government that will deliver more efficient services. To this end, government will privatise, deregulate and liberalise publicly-owned industries to promote competition and expand industries, as well as

generate employment, create wealth and receive value for money. In the process, the number of government jobs will decline, but the cost of running government will decline drastically and release resources to create an enhanced social and economic environment that will support enterprises.

To reduce the level of poverty in Nigeria, which, up to the late 1990s, stood at 70% of the population, NEEDS intends giving special attention to agriculture and industry, by offering farmers improved irrigation, machinery and crop varieties to boost agricultural productivity, as well as supporting small and medium-term enterprises to create jobs for an estimated 15 per cent of the labour force that may be underemployed or unemployed. The programme concentrates poverty reduction efforts in the rural areas where poor people are more likely to live, be less educated and have larger families than the rest of the population. They also lack basic services such as clean water, education and health care, more than the urban poor, as well as such assets as tools, credit and supportive network of friends and family to finance business initiatives. NEEDS proposes developing the industrial sector by relying more on local resources and less on imports – guided by a local research and development strategy that seeks to promote science and technology-based small and medium-size enterprises; enterprises will focus on food processing, industrial chemicals, information and communication technologies, biotechnology, electronics and space technology as well as energy, oil and gas. Processing of Nigeria's crude product will create more jobs, and, particularly, for the informal sector because of forward linkage effects.

In executing these laudable programmes, the private sector will be allowed to thrive and drive the process. Within this context, it is recognized that the informal sector will play an important role, especially in the area of employment generation and supply of numerous goods and services. However, in view of the education and skills gap in the sub-sector, courses that build vocational and entrepreneurial skills will be provided, and training and exposure to information and communication technology will be improved at all levels. Growth of private provision of education and training will also be encouraged.

In addition, various private internal and external financial sources have been identified, as additional support to government's fiscal operations. For instance, it is estimated that interest on the repatriated capital of Nigerians will fetch about three times the current inflow of FDI, while the proceeds of annual debt repayment saved from debt cancellation will be available to provide public infrastructure. The investment environment will be improved to encourage foreign entrepreneurs wishing to invest in Nigeria to avoid facing the many constraints of doing business such as lack of transparency, corruption and bureaucracy. Import and export procedures and the many laws and regulations which stifle private enterprise will be simplified.

Assessment of the Prospects for Job Creation in the Informal Sector under the Programme

There have been attempts in the past to bring the issue of unemployment to the front burners of Nigeria's economic policy formulation, but all of these good intentions have failed because of lack of appropriate implementation strategies. There was the National Directorate of Employment Scheme in 1989, which aimed at empowering the poor through skills development and training in business management for unemployed youths and graduates of higher institutions who wished to be self-employed. Under the current administration, another attempt was made along this line in 2001 through the introduction of the National Poverty Eradication Programme (NAPEP). The implementation of the NEEDS programme would, therefore, have to take a cue from the pitfalls in the execution of the earlier initiatives in order to succeed and achieve its laudable objectives of employment generation to address deep-seated poverty in Nigeria.

It is pertinent to understand from the onset that poverty eradication, which is the major strand of the NEEDS programme, can be best tackled only if the very poor are appropriately targeted. So, the pertinent question will then be, where are the very poor mostly located, in what vocation are they mostly engaged, and how can their needs be adequately catered for in the programme? Of course, the right answers are that, the very poor are mostly

resident in the rural areas, their vocation is largely in the informal sector, and support should come to aid their economic activities or in the skills that they are best suited or trained, which are agriculture, crafts and semi-manufactures. Nonetheless, this is not to suggest that the urban poor are not as important, but the fact needs to be emphasized that there are differences in concentration of poverty and in the respective needs of the different segments. For instance, in terms of proportion, the number of the rural informal sector is higher, and the main areas of rural occupation are agricultural production and handicrafts, while semi-manufactures and manufactures dominate the urban informal sector. These facts should dictate the direction of policy with respect to each area of the informal sector, as well as the area of concentration of policy measures when there is application of overlapping policy instruments.

In these regards, the NEEDS programme has provided adequate and well focused strategies. First, by recognizing that private sector driven economic development strategy is the vogue globally and the accepted and well-tested policy, which makes it easy to recognize that the private sector is a major driver of the process. But beyond that, the strategy recognized that it would be ill-advised to adopt the capital-intensive production methodology or system of the western world to suit an economy with poor technology, but abundant versatile labour. It is also an established fact that large and mega companies create few jobs, but small ones assure more jobs. Although economies of scale of production will be lost in the process, nonetheless, if the programme is to solve Nigeria's acute poverty, then there is no running away from this policy. What is more, since the vast majority of the informal operators are in the rural areas, and they are engaged mostly in agriculture, a large chunk of the targeted 7 million jobs to be generated can best be assured from that source. Agriculture remains Nigeria's largest source of national wealth, after oil, but it remains, and may indeed remain the major contributor to the national income and labour employment for some time to come. This is why the informal sector becomes very vital in the current scheme of government programmes and national policy, and by inference, in the overall success of the NEEDS programme.

A wide range of products exists in the informal sub-sectors of the manufacturing, agriculture and service industries scattered in various nooks and crannies of Nigeria. There are substantial employment generation prospects also in the backward and forward linkages with the enterprises in the formal sector, especially foreign direct investments. The promotion of tourism and entertainment should also support employment in Nigeria, two areas in which the country's potentials are great. In the same vein, it is hoped that if the repatriation of the estimated $2.3 billion annual interest earned on flight capital by Nigerians is realized, a potent source for financing domestic investment and creating additional employment, especially in the informal sector will be generated. In addition, successful transition of a great number of the informal businesses into the formal sector through the adoption of appropriate incentives and progressive policies will not only increase revenue for government, but it will also support other efforts at employment generation and improvement in infrastructure for an enhanced business environment.

It is worthy of note that finance is at the very root of the development of the informal sector. In recognition of this area of dire need in the most vulnerable sector, current policy thrusts under the NEEDS strategy have rejunevated and repackaged two previous vital financial support schemes in place to enhance investment and employment. These are the Agricultural Credit Guarantee Scheme (ACGS) and the Small and Medium Enterprises Investment Initiative (SMEII). They are targeted at closing the investment financing gaps in agriculture and industry for small scale enterprises which are largely in the informal sector. Money lent under the two schemes is at below market rates, and at more relaxed terms for repayment to encourage enterprises in these sub-sectors. There is no doubt that with increased funding, expanded operations and adequate financial skills, the benefits of the schemes should translate into increased employment generation

However, it is not enough to look at the supply side of the equation if the demand side of the programme is inadequately addressed. In other words, if local industries that produce domestic good substitutes for imports in consumer items such as clothes, shoes, preserved food and drinks, furniture, toiletries, beverages, soaps and vehicle spare parts lack substantial and

encouraging patronage, of what essence is increase in production? What are the prospects for sustained employment generation in these sub-sectors where informal enterprises abound? In a similar vein, a sustained employment generation in the agricultural sector is best assured in an environment where surplus harvests can be preserved and converted into semi-manufactures, or exported. The current drive in cassava production because of guaranteed demand from China is a good case in point. Nonetheless, another employment prospect is available in Nigeria's participation and leadership role in regional economic arrangements where trade is very critical to Nigeria. The country's large population creates employment opportunities for its citizens when regional investors take advantage of the country's large market just as much as the size of the economy serves as a good ground for Nigerian entrepreneurs to take advantage of economies of scale to produce more cheaply for the rest of the region.

The point being emphasized here is that the proposed transformation of the social value system of the Nigerian consumer needs to be accelerated and implemented effectively for the informal private sub-sector to play its role in Nigeria's economic development process. Another note of caution that needs to be sounded is the risk of some businesses going underground and thereby creating some unemployment if reasonable care is not adopted in the attempt to regularize and formalize operations of the informal sector.

A welcome initiative of the NEEDS programme that portends substantial opportunities for employment generation in the informal sector, is the divesture of waste management to the private sector. Similarly, the policy of public-private partnership investment in social and economic infrastructure will support employment of both skilled and unskilled labour in large numbers. In particular, execution of public works could be done by direct labour, or in conjunction with private contractors in order to create employment opportunities.

V An Appraisal of Employment Generation under the NEEDS Programme

The antecedents to the NEEDS programme indicated that poverty was as high as 70 per cent up until the late 1990s, and as recent as 2003 Nigeria still faced a threat of not meeting the Millennium Development Goals (MDGs) of halving the incidence of poverty by 2015. Nonetheless, it is worthy to note that the rate of unemployment had declined from 18.0 per cent in 1999 to 10.8 per cent in 2003, because an estimated 3.5 million jobs were created during the period. Real wages also went up significantly, reversing the downward spiral in real income of workers that began since the 1980s. However, the unemployment rate in nominal terms translated to the stark reality that as many as 6.4 million active people were still looking for jobs. The need to reverse this trend was one of the major planks of the NEEDS programme. Unlike Nigeria's previous development plans, the failures of which had become the norm and was widely accepted as the problem of ineffective implementation, the NEEDS was said to be poised to take on a different character as the document acknowledged that the acid test of the programme's success was in its implementation.

It is, therefore, on this premise that the success of the programme in delivering on its promised new jobs will be assessed. In particular, the focus in this paper will be on how the informal sector has faired in the light of the employment generation strategies in the NEEDS plan. The modality considered appropriate in this regard, is to assess the impact of the direct as well as the indirect strategies so far adopted towards achieving the set employment targets. The strategies, as spelt out in the NEEDS document include the following:

- The NEEDS programme was to become the basis for government's annual budgetary allocations in playing the role of enabler, facilitator and regulator of the economy. There would also be a coordinated approach between the three tiers of government through the implementation of both SEEDS and NEEDS, both of which was expected to create at least 7 million new jobs over the first period of implementation.

- The programme's strategy is anchored on the private sector as the engine of growth – for wealth creation, employment generation and poverty reduction. The private sector is the executor, the direct investor and manager of businesses. The key element of this strategy is to shrink the domain of the public sector and buoy up the private sector.

- At the micro level, the programme would adopt explicit sectoral strategies for agriculture, industry/small and medium enterprises (SMEs), which are critical for employment generation and, therefore, would receive special attention under NEEDS. The priority to agriculture (especially to improve the productivity of peasant farmers) is a key element of poverty reduction strategy since over 50 per cent of the poor are in agriculture. Industry, especially the SMEEIS is expected to provide a boost to agriculture, particularly to the urban labour force.

In these contexts, the impact of the strategies on employment generation, with interest focused on the informal sector, will be considered under the following headings:

(i) *How annual budgetary programmes and the coordinated efforts of the three levels of Government has been able to create the targeted jobs.*

The relevant issues to consider here include:

- to what extent has the Government been able to play its catalytic role of job creation through its budget allocations?

- the impact of the empowerment strategies on education and health to build capacity in the relevant areas; and

- the coordination capabilities of the different levels of government to build on the efforts of one another..

(ii) What successes have been recorded in the employment generation opportunities for the informal sector through the implementation of the micro sector policies on agriculture and small and medium enterprises (SMEs)?

(iii) To what extent has the private sector been able to play its assigned role of wealth creation and employment generation within the provisions of the NEEDS?

The Impact of Annual Fiscal Programmes of Government Capital outlay on Agriculture, Education and Health

Government spending on social and economic services since the implementation of the NEEDS programme from 2004 revealed the extent of its commitment to addressing major economic and social issues. This is especially so in the areas of agriculture, education and health, the sub-sectors that would need to be emphasized in order to deliver on the goals of capacity building and poverty reduction. For instance, the capital outlay on agriculture before the implementation of the NEEDS was as low as ₦8.5 billion (or 0.08 per cent of GDP) in 2003, but it increased substantially in 2004 and maintained that trend up to 2006, at N38.6 billion (0.33% of GDP), ₦60.3 billion (0.41% of GDP) and ₦89.5 billion (0.49% of GDP), respectively. The same encouraging picture is seen in the combined outlays for education and health, which increased consistently from ₦21.1 billion (0.21% of GDP) in 2003 to ₦64.8 billion (0.36% of GDP) in 2006 (Table 1). Indeed, the performance of the states and local governments in these areas surpassed that of the central government in terms of volume. Their capital outlays on the two sub-sectors, which complemented those of the federal government, were ₦96.4 billion in 2003 and doubled to ₦192.0 billion in 2006.

It is expected that such substantial and growing outlays on agriculture, a largely informal sector activity, should create both rural and informal sector-based urban jobs for the hitherto unemployed work force. In addition, because of the enormous forward linkages in the sub-sector the bulk of the employment generated would be domiciled largely in the informal

sector, as well. In a similar vein, the large and increasing expenditure on education and health is a positive development towards a new trend by the Government. It supported the Government in delivering on playing its role of an enabler for capacity building initiatives that were geared towards creating an employable workforce for the Nigerian labour market in the near term. It is no gainsaying that it might take some time yet for the recent capital outlays on education and health to impact on the desired quality and availability of the labour force for the development challenges ahead, because the transmission process is of medium to long-term horizon.

Appraisal of Official Policies towards Developing Informal Sector Activities that Support Employment Generation

The Agricultural Credit Support Scheme (ACSS)

The Agricultural Credit Support Scheme (ACSS) was the joint initiative of the Federal Government and the Central Bank to provide credit facilities to farmers at single digit interest rate. The programme, was originally established in 1978 and initially tagged, Agricultural Credit Guarantee Scheme Fund (ACGSF).

In the twenty-eight years of the programme, some x14.9 billion was lent to about 497,000 borrowers, indicating an average of x552 million per year, and x30,000 per borrower. However, in the first three years (2004-2006) since the NEEDS became operational, about x9.39 billion were lent to 135,303 people, averaging x3.13 billion per annum, and x70,000 per borrower (Table 2). In other words, in only three years of the NEEDS programme, over 63 per cent of the total loans for the twenty-eight year period was lent to about 27 per cent of the total number of borrowers. In terms of repayment of the loans, the success rate showed that 70 per cent of the borrowers repaid 58 per cent of the loans, the same rates for the period, 2004-2006. The bulk of the loans was lent to individuals and cooperative societies, and largely to those who produced grains and tuber roots as well as poultry farmers (Table 3).

Other welcome and effective complementary official policy and institutional support for agricultural production and employment generation in the sector have included fiscal incentives of import waivers and favourable tariff policy. There were also Presidential Initiatives on Rice and Cassava Production and Export, Committees on Cocoa Development Programme and Cotton Development. Evidences that indicate these policy initiatives were effective included the index of agricultural production and the estimated output of major agricultural products as shown in Tables 4 and 5. The figures indicate appreciable increase of between 16 and 20 per cent over the three years, spanning 2004-2006. With these increases, and given that productivity did not increase at the same pace, it would be expected that some significant opportunities for employment at the informal segment of the sector were created. In addition, the backward and forward linkages to other sectors of the economy, especially in the service and manufacturing sectors, were other great potentials for generating increased employment in the sub-sector.

The Small and Medium Enterprises Equity Investment Scheme (SMEEIS)

This is a voluntary scheme initiated by the Bankers Committee in 1999, in response to the Government's concerns for the promotion of small and medium enterprises to serve as vehicles for rapid industrialization, poverty alleviation and employment generation. Under the scheme, ten per cent of the profit after tax of deposit money banks is to be invested in small and medium enterprises.

The total amount set aside by Deposit Money Banks under the scheme totaled x38.23 billion as at end-2006, but sadly, only x17.84 billion has been utilized. Nonetheless, the sectoral allocation and geographical spread of the amount invested appeared to appropriately reflect the area of most needs in order to achieve the objective of the scheme. For instance, x6.74 billion (40 percent), x3.51 billion (21 per cent), x2.65 billion (16 per cent), x1.09 billion (6 per cent) were allocated to manufacturing, tourism, services, and agro-allied sectors, respectively (Table 6). Furthermore, the bulk of the investments were located in prime industrial locations of the country, such as Lagos State, Ogun, Rivers, Cross River, and Abia States, in the

proportions of 56.5, 8.1, 3.23, 2.0 and 3.23 per cent, respectively (Table 7). However, the number of executed projects in each sector did not particularly reflect the value of investments, possibly because of industry differences in the capital outlay for projects. For instance, there were 118 manufacturing projects costing x6.74 billion or an average of x551 million as against 11 projects and 52 projects with averages of x318.4 million and x50.9 million for tourism and services sectors, respectively (Table 6).

Like the agricultural credit scheme, the focus of the SMEEIS was largely on the informal sector, while employment generation was part of its major deliverables. The amount set aside under the scheme has been under-utilized for the same reasons of lack of appropriate articulation and packaging of project proposals, inadequate provision of collateral by the potential beneficiaries under the scheme, some of the issues addressed earlier in this paper. This is a scheme with a great potential for elevating the status of the manufacturing sector in Nigeria, in addition to its employment generating capacities especially in the context of its forward linkage effect. On the balance, some employment generation activities have been created under the informal sector based scheme, although much more could have been achieved if more investment opportunities had been created with the massively unutilized funds set aside by the deposit money banks.

Microfinance Initiatives

Government has also continued to encourage other complementary policies towards financing micro enterprises, and in the process support the enhancement of employment. They include the conversion of community banks to microfinance banks, the process of which is still ongoing, and the registration of finance companies, now numbering 112, and bureaux-de-change institutions that stood at 322 as at the end of 2006 (see CBN 2006 Annual Report, pages 45 and 46).

Impact of the private sector in creating wealth and generating employment under NEEDS

The major areas of activity of the informal private sector in Nigeria include agriculture, wholesale and distributive trade and communication. The three sub-sectors also stand out as the main drivers of employment in the private sector in the last four years. Their contributions to GDP in 2003 totaled 64. 3 per cent, but had increased to 81.3 percent by 2006 (Table 8), with the attendant increase in employment as indicated in Table 9 on the Index of Employment by Economic Activity . In particular, the index of employment for the communication sub-sector rose phenomenally from just 162.8 in 2000 to 1809.66 by 2003, and rose further to 2684.1 in 2006 (Table 9). Similarly, in the agricultural sub-sector, an increase in employment of the magnitude of 40.0 per cent was recorded, owing to the various policy initiatives of government at the three levels, complemented by significant capital outlays to develop the sub-sector. In addition, foreign investment of about $21.7 billion had been ploughed into the communication sub-sector between 2004 and 2006 (CBN 2006 Annual Report, page 86).

These are good indications that the private sector is beginning to assert itself in the mainstream of the Nigerian economy, more so, because Government, in an attempt to support the development of the economy, has disengaged in those areas for which the private sector is best suited by fast-tracking the privatization and commercialization programmes in the last few years,. The contribution of the private sector to total working population increased appreciably during the period, 2004-2006. This is reflected in the number of new employment generated in the building and construction, communication, transportation and distributive trade sub-sectors (Table 10).

Other Supporting Indicators

Overall, it is an incontrovertible fact that employment has increased appreciably in Nigeria over the last four years. Total working population increased from 46.8 million to 48.6 million, translating to an additional employment of 1.8 million generated during the three year period. The unemployment rate also fell, but more in the urban area than in the rural

area. However, what may not be so discernible or easily ascertainable with a high level of confidence is the proportion of the additional employment generated that is accounted for by the informal sector. But what is incontrovertible is that in the light of the significant proportion of the informal sector in Nigeria's economic activities as well as the fact that the activities of most sub-sectors that generated increased employment are predominantly informal sector based, the sector can be said to have benefited largely from the employment generation targets under the NEEDS programme. The basis for assessing the impact of the informal sector can be further buttressed by the output index of the sub-sectors and their contributions to the GDP. For instance, agricultural output increased from 40.98 per cent of GDP in 2003 to 47.02 per cent. The same trend has been recorded in wholesale and retail trade, one of the major areas of economic activity for the informal sector, with contribution to the GDP increasing from 12.5 per cent to 16.7 per cent.

VI Proposed Legal, Regulatory and Policy Frameworks to Support the Contribution of the Informal Sector to Nigeria's Economic Development

In a study by Tuchman (1978), he avers that a subordinate relationship that has some political economy undertone exists between the formal and informal sector in the sense that the developed countries' policy advocacy to foster growth of the informal sector activities in developing countries is intended to make the latter subordinated to the former in the global economic equation. The sense in his argument is that since the formal sector in developing countries is largely dominated by multi-national direct investment enterprises, which unfairly exploit the domestic economy, a policy that continues to support the informal, small-size domestic enterprises is not well intentioned. He, therefore, calls for caution in the policy direction towards encouraging the informal sector, but rather advocated an enhancement of policy stance in the direction of full integration of the sector into aggregate economic activities. In contrast, a study by Riesman Associates Ltd. (1989) concludes that informal sector manufacturing appears to have the most promising potential for contribution to the economy's total output of goods and services based

on average value-added for enterprises. In addition, the views of contemporary development literature are that advancement involves industrialization in which a decreasing proportion of the informal sector and, especially agriculture, should hold sway, and in the process, that an increasing proportion of the labor force would be engaged in fast growing sectors, such as services and telecommunications.

While Tuchman's submission and that of contemporary development economists may be instructive, there is a need to strike a balance in the argument for or against the growth of the informal sector and, agriculture in particular, in developing countries. In Nigeria, for example, an incontrovertible fact is that the informal sector plays a crucial role in ensuring the resilience of the economy and would be expected to continue to play a significant role, especially in view of its potential linkages with activities in the other sectors of the economy. In addition, the production system in the formal manufacturing sub-sector, for instance, largely depends on machinery equipments, which is attended by loss of labour, while the reverse is the case for the informal segment. Even in the formal service industry, activities depend largely on foreign skills and imports, and where there is inadequate foreign exchange to procure them, the economy will be left with no choice than to depend on local substitutes. The fact is that the methods or techniques of production and service delivery are best delivered using the labour-intensive system, which is Nigeria's area of comparative advantage (because there is no more technology to steal, but locally suitable ones need to be invented). This lends credence to the admission that the informal sector will continue to be relevant and attain a high proportion of the Nigerian economy.

This position is embellished by two important reasons that are peculiar to Nigeria under the current economic programme. First, is the state of the technological advancement of an economy, which dictates the extent of its industrial development, and in turn determines its ability to absorb the labour force that will be released from the informal sector and, particularly agriculture. Incidentally, technologically advanced economies, or potential ones, are often used as points of reference in the arguments of the development economists, but Nigeria, is by no means near that status. The second reason that informs the admission of the continued importance of

agriculture in the Nigerian economy has to do with the life span of the current economic programme under NEEDS. In relation to Nigeria's industrialization programme, NEEDS becomes a relatively short-term programme, if viewed against the realities on ground on the country's ability to actualize the industrialization dream. Meanwhile, until the industrialization dream is attained, it can only be safe to work with the present economic realities and admit what is feasible, rather than indulge in an exercise that is tantamount to "hatching the country's eggs before they are laid". Nonetheless, it is a valid argument that avenues are open to the informal sector in the service and telecommunications sectors, and that labour could move from agriculture to other less technology demanding and non-manufacturing areas, especially where these are areas of economic activity that are domestically entrenched, are still evolving, and have great potentials for growth.

In the meantime, some important and far-reaching official policy initiatives need to be taken to ensure that the sector is properly regulated, monitored and supported in the course of playing its assigned role. These policy initiatives will, among others, include the following:

- Official support to the informal sector in whatever form should be sustained and viewed as part of a long-term strategy aimed at increasing employment opportunities in the sector in view of the job-creating and job-sustaining role of the sector.

- Given the importance of the informal sector, macroeconomic stability is essential for its development, especially in the area of keeping the inflation rate low. Inflation has destroyed many domestic informal and formal businesses as they cannot compete with imports, which are cheaper. Inflation has also contributed to the low and uncompetitive wages for labour in the sector.

- Provision of adequate and efficient infrastructural facilities, which has been the major constraint to Nigeria's economic development, should, therefore, receive priority attention of the sector, especially its rural segment, where employment of labour in the sector is mostly located.

- Generous incentives could be introduced to employ workers and fully remunerate entrepreneurs by granting land use rights and facilitating private sector development in the area of social and environmental responsibility.

- Informal micro-enterprises should be encouraged to form partnerships and enlarged to take advantage of the capital market, for funds mobilization, and absorption of more labour.

- There is need to further encourage sub-contracting culture in Nigeria and small enterprises should complement medium and large ones in this endeavour. This will not only support enhancing employment in the informal sector, but also encourage its transition into the formal economy through simple registration processes. To this end, indigenous small and medium-scale enterprises should be empowered by imposing minimum quotas for local content in tendering and procurement processes.

- As a further step towards encouraging the formalization of the informal sector, the Nigerian authorities will need to implement the comprehensive tax reform bill to eliminate multiple taxation and remove barriers to the growth of a vibrant private sector. In addition, disclosure and documentation requirements should be simplified

- In order to raise the productivity of informal sector workers it is necessary to strengthen the conditions and principles, which regulate labour relation, working conditions and employment opportunities.

- The low level of capitalization and technology, productivity and irregular employment relationship, which is a product of fear of expansion and lack of proper education and enlightenment, need to be addressed frontally.

- Inadequate safety and health standards and environmental hazards are evident in the sector, because of lack of awareness and/or technical capacity to implement the standards. This is a challenge that has caused large human and material losses, and would need

to be faced with an integrated approach by building on local institutional support of trade guilds and business associations, including official public enlightenment campaigns. It will also be helpful to develop measures that will effectively enable micro-enterprises increase their income and services to assist them in protecting their health and improving their working conditions.

VII Conclusion

This paper has tried to analyze the informal sector in all its ramifications, and has come up with the conclusion that the sector like a hydra-headed animal is difficult to describe, but it is indispensable all the same. Its presence is felt everywhere and, as a result, its existence defies any level of economic development, although there is evidence that it is more pervasive in developing economies because of its resilience in addressing the employment needs of the unskilled poor and mass underemployed graduates. Nigeria's informal sector, which is similar in all respects to those in most developing economies, has its political economy background as much as it has in social and cultural dimensions. In terms of employment generation, the dominance of agriculture in economic activities and the abundance of human resource in developing countries present a good argument for labour-intensive production technology. The current home-grown programme under the NEEDS strategy should be Nigeria's antidote to poverty alleviation in meeting the millennium development goals, if its provisions, especially with regard to inclusiveness of the masses, are adequately implemented. Available economic and social data used in this paper to assess the level of success of the NEEDS in meeting its employment creation target indicated that, in the first three years of the programme some significant strides have been made, especially in the informal sector through both official and private sector initiatives. Nonetheless, a lot more is still needed to exploit the abundant employment capabilities of the informal sub-sectors in the light of its overbearing influence on economic activities in Nigeria. Concerted efforts need to be made, therefore, by official and private sector led initiatives to sustain current success as well as introduce appropriate incentives and regulations to monitor the sector in a bid to expand its diverse components and

encourage the operators in the sector to transit to the formal segment for a more meaningful contribution to employment and economic development in the near term.

Table 1
Government Capital Expenditure (x million)

	2001	2002	2003	2004	2005	2006
Federal						
Social & Community Services	**39,988.00**	**21,823.00**	**21,111.20**	**27,260.70**	**53,776.60**	**64,857.20**
Education	19,860.00	9,215.00	14,680.20	9,053.10	31,940.80	32,705.50
Health	20,128.00	12,608.00	6,431.00	18,207.60	21,835.80	32,151.70
Economic Services	**135,675.00**	**129,776.60**	**42,105.10**	**88,594.80**	**171,653.90**	**173,048.30**
Agriculture & Natural Resources	57,879.00	32,364.40	8,510.90	38,669.80	60,310.70	89,544.90
Transport & Communication		17,083.20	6,639.60	6,973.80	15,587.90	8,178.60
Housing	56,356.00	44,479.20	9,495.50	2,280.00	6,698.00	2,831.50
Roads & Construction	21,440.00	35,849.80	17,459.10	40,671.20	89,057.30	72,493.30
Social & Community Services	**23,161.90**	**24,841.00**	**33,354.80**	**57,053.10**	**71,118.40**	**80,587.30**
Education	15,790.00	16,090.60	17,839.20	35,882.00	44,728.00	50,766.30
Health	7,371.90	8,750.40	15,515.60	21,171.10	26,390.40	29,821.00
Economic Services	**38,404.10**	**54,073.80**	**72,241.00**	**140,196.30**	**174,758.70**	**198,366.30**
Agriculture & Natural Resources	5,988.90	6,682.10	9,581.90	20,875.40	26,021.80	29,925.10
Transport	32,415.20	37,254.30	39,081.10	69,202.80	86,263.30	97,477.50
Housing	-	10,137.40	8,645.80	20,557.90	25,626.00	28,957.40
Roads & Construction	-	-	14,932.20	29,560.20	36,847.60	42,006.30
Local Governments						
Social & Community Services	**9,946.25**	**10,289.62**	**62,941.50**	**67,725.00**	**87,407.20**	**111,428.60**
Economic Services	**25,001.62**	**21,455.19**	**51,994.60**	**56,592.40**	**73,039.30**	**101,335.50**
National Total						
Social & Community Services	**73,096.15**	**56,953.62**	**117,407.50**	**152,038.80**	**212,302.20**	**256,873.10**
Economic Services	**199,080.72**	**205,305.59**	**166,340.70**	**285,383.50**	**419,451.90**	**472,750.10**

Source: CBN Annual Report & Statement of Accounts, 2005 & 2006

Table 2
Cumulative Number and Value of Loans Generated & Repaid

A. Loans Generated	1978 - 2006	2003	2004	2005	2006
Number	497,692	24,303	35,035	46,238	54,032
Value (N'000)	14,912,657	1,164,460	2,083,745	3,046,739	4,263,060
Avg. Loan Per Borrower	29.96	47.91	59.48	65.89	78.90
B. Loans Repaid					
Number	343,248	21,652	26,208	32,549	32,595
Value (N'000)	8,633,749.99	910,181.20	1,171,754.20	1,861,097.10	2,234,667.55
Avg. Repayment Per Borrower	25.15	42.04	44.71	57.18	68.56
C. Proportion of (B) to (A)					
% of Loan Value repaid as % of Loan Generated	57.90	78.16	56.23	61.08	52.42
Number of Borrowers who repaid as % of number of Borrowers	68.97	89.09	74.81	70.39	60.33

Table 3

Cumulative Total Loans Guaranteed: Analyzed By Purpose (x'000)

Purpose	1978 - 2006	% of Total	2003	% of Total	2004	% of Total	2005	% of Total	2006	% of Total
Livestock										
Poultry	1175,743.80	7.88	95,162.80	8.17	172,134.00	8.26	220,830.50	7.25	303,451.00	7.12
Others	264,640.10	1.77	11,800.00	1.01	19,525.00	0.94	29,847.30	0.98	64,700.00	1.52
Fisheries	294,850.10	1.98	13,150.00	1.13	18,240.00	0.88	77,490.00	2.54	114,400.00	2.68
Food Crops										
Grains	8,386,500.69	56.24	661,558.10	56.81	1,248,992.70	59.94	1,680,927.20	55.17	2,273,521.39	53.33
Tuber/Roots	4,080,778.29	27.36	352,453.50	30.27	557,487.00	26.75	934,253.50	30.66	1,362,532.29	31.96
Others	67,330.60	0.45	-	-	-	-	-	-	67,330.60	1.58
Cash Crops	283,126.50	1.90	9,890.00	0.85	18,185.00	0.87	50,545.00	1.66	67,795.00	1.59
Others	359,686.90	2.41	20,446.00	1.76	49,181.00	2.36	52,845.00	1.73	9,330.00	0.22
Total	14,912,656.98		1,164,460.40		2,083,744.70		3,046,738.50		4,263,060.28	

Source: CBN Website (Development Finance Department)

Table 4
Index of Agricultural Production by Type of Activity (1990=100)

Sub-Sector	2001	2002	2003	2004	2005	2006
Crops	143.4	149.3	159.8	169.9	181.5	195.3
(a) Staples	157.5	164.1	175.9	186.9	199.5	215
(b) Other Crops	69.9	72.8	76.5	82.2	88.6	93.3
Livestock	199.5	208.9	225.5	238.0	250.0	265.0
Fishing	157	158.1	160.5	172.1	182.1	190.7
Forestry	120.4	121.3	123.1	125.7	132.6	134.8
Aggregate	148.9	154.9	165.4	175.5	186.9	200.1

Source: CBN Annual Report & Statement of Accounts, 2005 & 2006

Table 5
Estimated Output of Major Agricultural Commodities ('000 Tonnes)

Item	Area Planted (Million Ha)			Production ('000 Tonnes)					
	2003	2004	2005	2001	2002	2003	2004	2005	2006
Crop Production	114,702.70	43,561.60	90,075.00	95,841.10	99,813.60	106,854.40	113,591.80	121,146.30	130,574.10
Other Crops	16,735.80	7,312.60	7,661.40	7,572.30	7,886.20	8,286.10	8,896.50	9,588.40	10,103.50
Livestock Products	2,316.40	2,427.50	N/A	2,601.00	2,724.40	2,940.40	3,102.90	3,260.30	3,455.50
Fishing	524.70	548.30	N/A	494.60	498.10	505.60	542.00	573.70	600.60
Forestry ('000 cu meters)	129,551.30	132,205.40	-	126,667.00	127,623.00	129,552.40	132,275.30	139,486.60	141,812.80

Source: CBN Annual Report & Statement of Accounts, 2004, 2005 & 2006

Table 6
Sectoral Distribution of SMEEIS Investments

Sector	No. of Projects	Amount (N)	% Number	% Amount
Real				
Agro-allied	29	1,091,021,994.39	11.69	6.40
Manufacturing	118	6,740,577,814.05	47.58	39.56
Construction	10	1,111,288,000.00	4.03	6.52
Others	3	59,440,000.00	1.21	0.35
Service-Related Sector				
Information	21	1,749,763,999.04	8.47	10.27
Services	52	2,647,434,547.63	20.97	15.54
Tourism & Leisure	11	3,505,484,000.00	4.44	20.57
Others	4	133,935,000.00	1.61	0.79
Total	248	17,038,945,355.11	100	100

Source: CBN Website
Figures are as at 31st December, 2006

Table 7
Geographical Distribution of SMEEIS Investments

State	No. of Projects	Amount (N)	% Number	% Amount
Abia	8	523,400,000.00	3.23	3.07
Cross River	5	3,092,455,906.55	2.02	18.15
Lagos	140	7,813,783,393.90	56.45	45.86
Ogun	20	1,499,223,853.94	8.06	8.80
Rivers	8	997,964,181.11	3.23	5.86
Others	67	3,112,118,019.61	27.02	18.26
Total	248	17,038,945,355	100	100

Source: CBN Website (Development Finance Dept.)
Figures are as at 31st December, 2006

Table 8
Contribution of Informal Sector Activities to Gross Domestic Product
(at 1990 Constant Basic Prices)
x billion

Activity Sector	2001	2002	2003	2004	2005	2006*	Average	Q1-Q3 2007
Agriculture	182.66	190.37	203.01	216.21	231.46	248.05	211.96	178.27
Wholesale & Retail Trade	55.11	58.66	62.06	68.08	77.28	87.90	68.18	62.97
Services of which								
Telecom & Post	59.17	72.46	72.75	79.18	85.48	93.03	77.01	7.81

Table 8 cont'd

Activity Sector	Share in Total (%)						
	2001	2002	2003	2004	2005	2006	Avg (2001-2006)
Agriculture	**42.3**	**42.14**	**41.01**	**40.98**	**43.87**	**47.02**	**42.89**
Wholesale & Retail Trade	**12.76**	**12.99**	**12.54**	**12.9**	**14.65**	**16.66**	**13.75**
Services of which							
Telecom & Post	**13.7**	**16.04**	**14.7**	**15.01**	**16.2**	**17.63**	**15.55**

**Provisional*
Source: CBN Annual Report & Statement of Accounts, 2005 & 2006

Table 9
Index of Employment by Economic Activity (1999 = 100)

Economic Activity	2000	2001	2002	2003	2004	2005
Agriculture	104.4	105.4	106.2	115.5	143.1	161.7
Manufacturing & Processing	95.7	99.4	96.5	101.4	103.7	99.8
Building & Construction	106.0	164.0	141.1	137.2	148.6	158.0
Hotels, Restaurant & Tourism	94.9	106.5	103.6	101.4	100.2	96.9
Transport	102.3	115.8	124.7	131.4	122.3	156.0
Communication	162.8	1112.6	1142.5	1809.7	1867.2	2684.1
Education Services	107.7	151.3	223.7	247.9	266.0	313.4
Mining & Quarrying	33.4	33.4	35.5	56.9	60.0	63.9
Utilities	97.4	97.8	99.6	101.9	103.7	100.0
Banking	60.5	85.9	88.1	86.5	89.6	105.7
Distributive Trade	99.3	110.9	120.8	125.2	130.3	134.1
Private Professional Services	119.9	108.4	110.6	124.9	136.1	144.8
Real Estate & Business Services	103.7	114.1	124.0	125.6	125.3	137.8
Health	98.6	104.1	113.1	113.5	116.3	107.9
Finance	116.8	116.9	119.2	105.2	111.4	217.4
Total	96.7	111.5	109.8	116.0	119.0	123.6

Source: National Bureau of Statistics Annual Statistics

Table 10
Employment Generated by Economic Activity (2000 - 2005)

Description	2000 Generated Employment	2001 Generated Employment	2002 Generated Employment	2003 Generated Employment	2004 Generated Employment	2005 Generated Employment	Cumulative Generated Employment
Agricultural	3,387	776	552	7,132	21,127	14,249	47,223
Manufacturing & Production	-81,650	69,946	-55,870	94,817	43,494	-74,612	-3,875
Building and Construction	17,322	168,558	-66,521	-11,135	32,933	27,293	168,450
Hotels, Restaurant & Tour	-27,404	62,375	-15,823	-11,925	-6,077	-17,658	-16,512
Transport	3,485	21,002	13,693	10,393	-14,125	52,212	86,660
Communications	10,933	165,341	5,214	116,142	10,008	142,213	449,851
Education Services	630	3,587	5,958	1,991	1,493	3,894	17,553
Mining & Quarrying	-37,400	0	1,197	12,005	1,758	2,169	-20,271
Utilities	-386	55	276	331	276	-552	0
Banking	-11,151	7,163	622	-443	859	4,571	1,621
Distributive Trade	-1,076	16,977	1,416	6,455	7,400	5,563	36,735
Private Professional Services	1,402	-809	158	1,007	790	612	3,160
Real Estate & Business Services	2,806	7,742	7,430	1,221	-208	9,353	28,344
Health	-4,264	16,751	27,715	1,218	8,426	-25,685	24,161
Finance	4,056	25	558	-3,397	1,496	25,553	28,291
Employment Generated	-119,310	539,489	-73,425	225,812	109,650	169,175	851,391

Source: National Bureau of Statistics

References

Alejandro Portes, et al (1989), "The Informal Economy: Studies in Advanced and Less Developed Countries"

CBN/FOS/NISER (2001), "A Study of Nigeria's Informal Sector In-depth Study on Nigeria's Informal Manufacturing Sector"

Central Bank of Nigeria, Annual Reports & Statements of Account, 2004 – 2006

Gerxhami Klanta (2001), "The Informal Sector in Developed and Less Developed Countries (Amsterdam Institute for Advanced Labour Studies (AIAS)"

John Maynard Keynes (1964), "The General Theory of Employment, Interest, and Money" the Classic Work and Foundation of Modern-Day Economics

Jacques Charmes (2000), "Informal Sector, Poverty and Gender – A Review of Empirical Evidence" (Background Paper for the World Development Report 2000).

John C. Cross (1998), "Encyclopedia of Political Economy", Philip O'Hara (ed), outledge, London & New York

Malick Antoine (2004), "Business Development Services, Unemployment and the Kenyan Informal Sector"

M. R. Narayana (2004), "Linking Formal and Informal Small-Scale Enterprises: Implications of Indian Experience for Developing Countries"

National Planning Commission (2004), "National Economic Empowerment and Development Strategy"

National Bureau of Statistics(2006), "Annual Abstract of Statistics"

National Bureau of Statistics (2005), "Social Statistics in Nigeria"

National Bureau of Statistics, "The Nigerian Statistical Fact Sheets"

Obadan, M (2006), "Economic Reforms and Implications for Macroeconomic Management" – Paper presented at a Seminar on Economic Reforms in Nigeria and Globalization

Reisman Arnold, (1989) "India's Economic Development: The Role of Institutionalised Technology Transfer"

The Mitchell Group, Inc (2003), "Youth Force Development in Nigeria – Situation Analysis"; Federal Republic of Nigeria

Tuchman (1978), "Building a State or Saving Lives? The Processes, Motives and Politics"

Turham, et al (1990), "Economic Systems: The Underground Economy and Underdevelopment"

Valentina Forastieri (1999), "Improvement of Working Conditions and Environment in the Informal Sector through Safety & Health Measures"

Wikipedia, (2002), The Free Encyclopedia version 1.2: Text of the GNU Free Documentation License

Issues in Nigeria's Transport Data for Planning and International Comparison

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Data play a crucial role in transport planning. Most plan failures in Nigeria are attributable in part to planning data problems. This paper examines the types, sources and shortcomings of transport data required for planning and international comparison in Nigeria. The paper found that transport data as published in Nigeria are deficient in terms of transport-development indicators, projections, comprehensiveness, consistency, adequacy and classification accuracy, among others. For Nigeria's transport data to be very useful for planning and international comparison there is the need for the government to adequately fund transport surveys regularly; harmonize the functions of the various agencies responsible for transport data collection and publication and; computerize the data storage and retrieval system.

Keywords: Transport; data; planning; adequacy; funding; Nigeria.

JEL Classification: L91, O20, R40.

I. Introduction

Post - independence planning in Nigeria spans over forty years. The essence of planning is to achieve overall national economic development and sectoral progress. The results, however, have generally been disappointing both at the national and sectoral levels. At the transport sector level, the 'sights and sounds' or 'voices and visions' are those of road deterioration, alarming rate of road and air crashes and associated casualties, vehicular air pollution above international benchmarks, non-functional rail system, corrupt and inefficient port system, pipeline vandalization and sabotage, poor coordination of transport modes, etc. Instead of transport efficiency and effectiveness, what obtains is transport disorder which vibrates to the remaining sectors of the economy given the role of transport in economic and socio- cultural development.

Many reasons have been adduced for national and sectoral planning failures in developing countries, Nigeria inclusive. These reasons include:

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deficiencies in plan formulation and implementation; unanticipated economic disturbances both nationally and internationally; insufficient and unreliable database; institutional weaknesses and bottlenecks; lack of political will; etc. (See Todaro, 1980). These reasons for plan failures are true of the Nigerian transport experience. Most of these reasons are post-planning failure factors with the exception of one, which is insufficient and unreliable database. Insufficient and unreliable database is a pre-planning failure factor. Transport plan is highly dependent on data not only from the transport sector but also from the other sectors of the economy based on the fact that transport is a *sin qua non* for the effective operation of other sectors of the economy. This makes the demand for transport a derived demand. Therefore, any transport plan requires data that are of high quality, and highly reliable. A transport plan may be as good as the database on which it was based or formulated.

Various transport plans have been formulated in Nigeria, which were embedded in the National Development Plans of 1962–1968, 1970–1974, 1975–1980, 1981–1985 and the subsequent Rolling Plans. These transport plans were based on available transport data. The deteriorating state of the Nigerian transport system, which is a consequence of the failure of the various transport plans, could be due to data problem. While it is difficult to draw this correlation emphatically because of the interactive and combinatorial nature of failure factors in plans, it is equally possible to admit that data constraints contribute significantly. This admission is predicated on two works Stolper (1966) and Fadare and Ogunsanya (1989). Inadequate data in the transport sector makes evaluation of progress difficult. This is buttressed by an evaluation report on the transport sector by a foremost government agency (NISER 2001). The report (NISER, 2001:9) noted that;

> *"It must be acknowledged right from the outset that for any meaningful performance evaluation of the transport sector, several performance indicators, covering each mode of transport are needed for requisite analysis. However, the type and scope of available data have limited the indicators that were ultimately used in evaluating the performance of the various transport modes covered...."*

The above citation is just one of the many observations about transport data in Nigeria and its limitations for planning, evaluation and international comparison. The poor database of the transport sector in particular is a national problem which requires urgent attention. It is, therefore, the aim of this paper to examine the status of transport data in Nigeria. Specifically, the paper examines the nature, types, sources, shortcomings and implications of existing transport data in Nigeria. It also looks at the causes of the data problems and recommended measures for improving transport data in Nigeria. It is imperative to note that there are many international conventions on the standards of transport data and its measurement across various modes with minor variations across countries. Nigeria, as a country, uses these standards and conventions subject to the constraints inherent in its data management system. This paper is, therefore, not primarily concerned with these conventions per se but the adequacy and usefulness of what presently exist in Nigeria's transport data system within the domain of these conventions.

II Review of some Conceptual Issues

Transport Planning

Transport planning is the conscious governmental effort to influence, directly and indirectly, key transportation variables over a period of time in order to achieve a predetermined set of transport and transport-related objectives. A transport plan is a set of quantitative transport goals or targets expected to be achieved in a given period of time. A transport plan may be comprehensive or partial. A comprehensive transport plan has its targets on all modes and related sub-systems of the transport sector, while a partial transport plan covers only a mode in the transport sector or a transport issue across the various modes. Transport plan could be a long term, medium or short term plan.

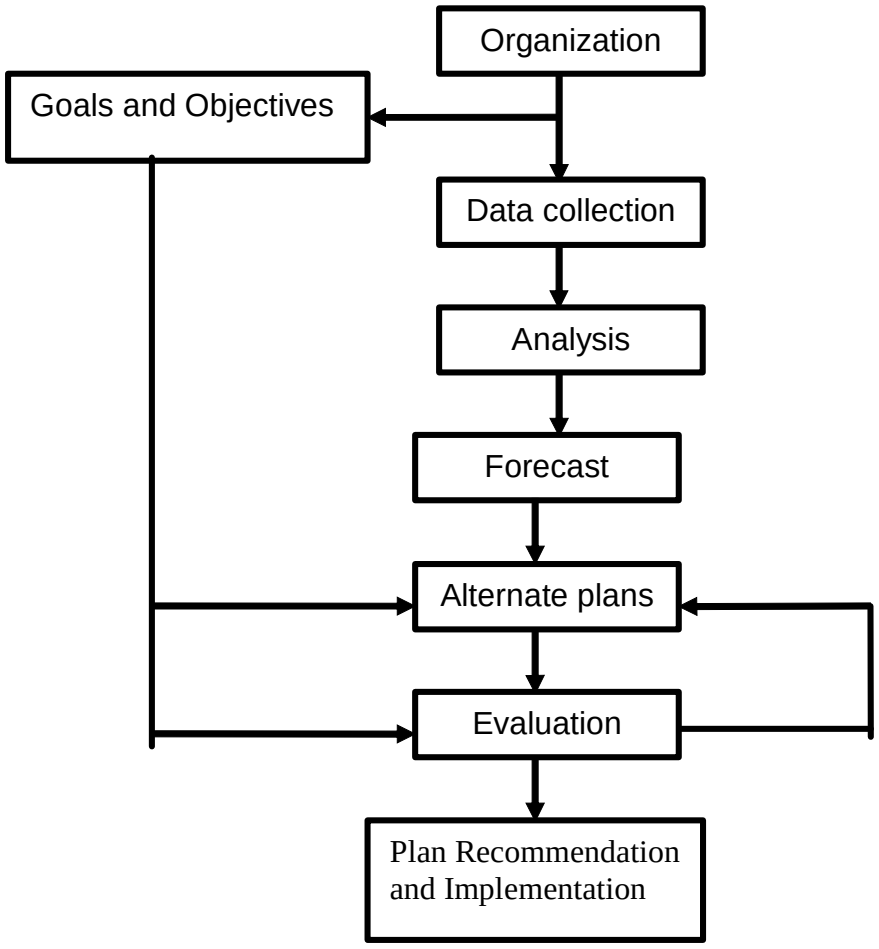
In the transportation planning process, some critical questions which define the basic elements involved in the process have been idealized by Expenditure Committee (1972:164), Starkie (1976:6&7) and Tolley and Turton (1995:199).These consist of ; (a) Definition:- What problem is the plan

intended to solve? (b) Diagnosis:- What are the causes of the problem? (c) Projection:-How will the situation develop if the problem continues? (d) Constraints:- What are the limits of finance, time, legal powers, politics, etc, within which planning must take place? (e) Options:- What are the alternatives for tackling the problems and what are their respective pros and cons? (f) Formulation:- What are the main alternative plans i.e. packages of available options within the prevailing constraints? (g) Testing: - How would each of the alternative plans work out in practice? How would they differ in their practical results? (h) Evaluation: Which plan gives greatest value in terms of solving the problems defined in (a)?

The above basic elements can be subsumed into the scheme for transportation planning process, which is summarized in Figure I. It is important to note that flexibility is allowed to take cognizance of the proposed planning peculiarities. The transportation planning process consists of six steps or stages that ultimately lead to plan recommendation and implementation. These stages are: setting of goals and objectives, data collection, analysis, forecasting, alternate plan development, plan testing and evaluation.

The schema below has been compartmentalized into three stages in some cases namely; pre-analysis phase, technical analysis phase and post analysis phase (see Tolley and Turton, 1995). Data collection is among the issues at the pre-analysis phase. It is not out of place to state that data play a dominant role in any transport planning process. Unrealistic transport data will lead to errors and unrealistic and unrealizable targets.

Figure 1: The Transport Planning Process (main steps).



Source: Witheford, 1976:522 (for other versions, see Starkie 1976 and Pas 1986).

Transport Data

Data are given facts from which other facts or conclusions may be inferred. This shows that data are not ends in themselves but lead researchers, planners and policy makers alike to a conclusion about certain phenomenon, after the processing and analysis of the given data. Data could be qualitative or quantitative in nature (Conyer and Hills 1991, Ojameruaye and Soyibo 1995). In order to conceptualize transport data it is necessary to have a working definition of transport. Transport is the spatial repositioning of

persons and goods from origin to destination for economic, political, social, military, cultural, leisure and any other utility (Arosanyin 2002a). Alternatively, it can be defined as that part of economic activity which is concerned with increasing human satisfaction by changing the geographical position of goods or people (Benson and Whitehead 1975:1). Whichever definition is adopted, one feature is that the demand for transport is a derived demand. Transport data, therefore, are transport and transport-related evidences often used by planners, researchers and policy makers to ensure cheap, safe, efficient, effective and sustainable transport system that is at the same time environment friendly.

Transport data and transport information are often used interchangeably, obviously for convenience, but in the technical sense of transport planning they are not the same. Transport data refer to any form of factual material or evidences which may be available on transportation while transport information refers more specifically to transport data which are of a special nature and in a form which makes them useful for whatever decision-making process and purpose that is under review. Transportation data could either be quantitative (numerical) or qualitative (non-numerical) in nature. In reality, it is usually a combination of both quantitative and qualitative data.

Quantitative transport data are transport data that can be expressed in numerical form thereby facilitating computation and accurate comparison. Qualitative transport data on the other hand vary in form; they range from description of modal characteristics, ways, and features to records of social norms, customs and ethics regarding any transport mode or issue. The numeric characteristics of transport objects are called transport variables while the non-numeric characteristics of transport objects are referred to as attributes. It is important to emphasize that observed characteristics of objects, whether numeric or not can be converted into numeric values called variables.

Transport data like any other data are not ends in themselves but means to arriving at an expected end if properly processed. Therefore, if the end results to which transport data are meant for will be adjudged adequate,

the data and its sources (collectors) must be reliable and trustworthy. The primary end uses of transport data are for transport planning and international comparison. And the essence of good planning is good quantitative intuition (Taylor 1979:47). Good planning requires huge and reliable database. Transport database are sourced from two main points. These are primary and secondary sources. These sources provide the clear demarcation between primary transport data (PTD) and secondary transport data (STD).

Primary transport data (PTD) are those facts which are collected through field work, such as traffic count, weighing, questionnaire administration, observational studies, etc. These sets of data are raw and original in content, facts or evidences. Secondary transport data (STD) consist of existing information collected by others and are available from sources secondary to the current collectors or users. These secondary sources include articles (published or unpublished), statistical bulletins, abstracts of statistics, statistical compendia, mimeos, reports, etc.

Transport data can be classified again on the basis of the length of time for which such data are available or during which they were collected. On the basis of this we have time series transport data, cross-sectional transport data and pooled transport data. Time series transport data are sets of numerical values of a transport variable or variables collected during successive time periods or different dates. The period may be sixty minutes (hourly transport data as in traffic count to determine peak hour), a day or twenty four hours (daily transport data), a week (weekly transport data), a month (monthly transport data), a quarter (quarterly transport data), a year (annual transport data), etc. Time series transport data are often spaced in time usually from one time to the other. Examples are: aircraft-kilometer flown ('000) from 1980-2004; road crashes from January to December 2004 in Nigeria, etc. These data provide the basis for trend analysis (and its components) of transport variables.

Cross-sectional transport data are sets of values of a transport variable or variables taken from individual units or geographical entities. It is usually taken across the entities at the same time. The bulk of transport surveys

are for the purpose of generating cross-sectional transport data. While both time series and cross sectional transport data are good individually and serve distinct purposes, they are better when combined in some cases. This combination is called pooled transport data. Pooled transport data, therefore, refers to a cross-time-series data or a time series of cross-section data. The main advantage of pooled transport data is that it enhances the degree of details available on a particular transport variable or variables. An example is the road network of African countries between 1960 and 2004. The time series component is the road network of individual African countries for the period 1960-2004 while the road network of individual African countries in a given year constitute the cross sectional component of the pooled road network data.

Transport data are wide as they cover the various modes of transportation. It may also include complementary data outside the transport sector that will assist in decision making on any transport issue. Transport data must of necessity encompass the four major components of transport which are the way, the terminal, the unit of carriage and the unit of propulsion. All these data including the flow and impact data are required for transport planning.

Ideal Structure of Transport Data

There is no universally acceptable structure for presenting or organizing transport data. The choice of format is dependent on the transport data collectors. Whichever structure adopted must employ the conventional methods of data presentation such as tables, pie chart, bar chart, maps, graphs, etc. Other issues that must be adequately addressed in any ideal structure of transport data are: the level of details, the degree of standardization and the spatial/temporal units for which data is reported.

Level of details: Good transport data must be sufficiently detail with respect to the issue under consideration and should not be ambiguous in interpretation. While a hundred percent data coverage and detail may not be feasible or achievable, the level of detail must be sufficiently high such that planning will not be hindered or based on *guesstimates.* As earlier

stated, the modal data structure must encompass network, nodes/terminals, flows and impacts. The detailness of transport data is generally very low in developing countries due to problems of data gathering, collation and retrieval. In a federal structure, the details must include federal, state and local authority components where the various tiers of government have control over the transport issue such as roads, mass transit vehicles, etc.

Degree of standardization: An ideal structure of transport data must exhibit a considerable level of standardization with respect to conceptual definitions, units of measurement and time of collection of data. Standardization ensures that data are comparable across time and space both within the national geographical entity (among states) and international frontiers (among countries). Some issues in standardization include, length (kilometer/miles), period of analysis monthly/quarterly/annually/ biennially); weight (kilogram/ton/metric ton); area (meter squared/hectare), distance traveled (vehicle-kilometre/vehicle-miles), categorization of vehicle types, etc. Standardization also ensures that transport data are less prone to error in the conversion process. A typical example of need for standardization at the international level is the conceptual definition of time within which death from road crash must occur for it to be classified as fatal. While the 1968 Vienna Convention on Road Traffic defined a road death as deemed to have occurred when a person injured dies within 30 days of the crash and as a result of the crash, not all countries use a 30-day definition. Some use 'on the spot', 'within 24 hours', 3 days, 7 days, etc. (See Arosanyin, 1999:491, Jacobs, et al, 2000).

The non-standardization of day – definition makes comparative analysis of death from road crashes often difficult at the international level without some adjustments which are sometimes subjective. Once standards are defined, inference and comparative analysis of transport data are enhanced.

Spatial-temporal units of reported data: Transport is spatial in nature as it can be located within a specified territory. A territory or geographical entity is made up of spatial units. Transport data, apart from covering the aggregate, must feature prominently the spatial components of the aggregate data. An example is the total international air passenger

movement to and from a country. Apart from the aggregate which should be movement from all the international airports in the country, the detail movement of passengers through individual international airports is important to show capacity utilization of airports and facilities for the purpose of planning for optimum resource use at the micro level. It also allows for examination of spatial variations thereby making targeted planning possible within a broad planning process. Also, good transport data must show trend for progress to be measured and evaluated. For instance, the trend in rail freight to the seaport would show its relative importance over time, and when compared with other modes it will show modal shift.

Once the above three issues have been addressed, then the structural adequacy of transport data must be evaluated. These structural adequacies are distributions adequacy, relationship adequacy and transport-development indicators adequacy.

Distribution adequacy: The structure of transport data must be such that it can adequately provide information about distribution. These may be statistical distributions. Also, it must be adequate in enhancing information about spatial distributions. Distributions provide important and valuable descriptive information which can then be used to compare different groups, times, activities or geographical areas, particularly in the context of identifying transport development problems and potential.

Relationship adequacy: Transport data must be highly responsive to information about relationships. These relationships may be spatial or aspatial. Any transport data structure should be able to show or provide insight into the pattern and forms of the relationships which exist between different factors of interest. For instance, road transport data must provide the necessary information for the computation of Smeed's equation, motorization level, road density, among others.

Adequacy of transport-development indicators: A structurally good transport data must also of necessity be able to provide information indicating the degree or level of development attained in a particular

transport mode or transport issue of interest. Transport development indicators are used on the one hand, for purely analytical purposes and, on the other hand, as aids to policy formulation and planning. They are important both as a means of identifying areas of transport with particular needs or problems and, as a means of evaluating the impact of specific transport policies or programmes overtime. They show where we were in time past and where we are today for progress evaluation and future adjustments.

The above ideal ingredients expected from a well structured transport data are seldom met in most developing countries, but provide an ideal which each country aspires to meet. Over the years attempts have been made to make data available across the various modes of transportation in Nigeria as evident in the numerous primary agencies involved in the collection and publication of transport data, and secondary agencies responsible for publication of general data on the Nigerian economy of which the transport sector is a subset. It, therefore, suffices to examine some pertinent issues in transport data in Nigeria. The expositions here are restricted to published data. It is important to note that volumes of transport data are collected by these agencies which are never published, but stored away in files and not in any computer - based data storage systems.

III. Sources and Types of Transport Data in Nigeria

Transport data is wide and diverse as it covers the various modes of transport available in Nigeria. Transport data also include transport-related or complementary data. For the purpose of convenience a modal approach is adopted in classifying the agencies involved in the collection of modal specific data and the data available. It is important to note that first the type of transport data highlighted here are by no means exhaustive, and secondly, there may be more than one agency responsible for the collection of a particular data because of the federal structure of Nigeria and duplication of agencies with overlapping functions. These agencies do complement each other, although there are cases of data conflicts. The transport data sources and types are examined under road, rail, air, pipeline, water, transport manpower, and general transport data.

Road Transport

Federal and State Ministries of Works: The data emanating from these agencies include: length of road network, categories of road network by trunk, types of road network (earth, bituminous, etc), road distance between Nigerian major cities (km), volume of traffic on roads (vehicle, type), road maps, road complementary facilities, other qualitative data, road user charges, expenditure on road (construction, rehabilitation and maintenance), etc.

Licensing Offices/State Boards of Inland Revenue: Available data from these establishments include: Vehicle registration (number, type, category by purpose), vehicle licensed (number, type, category by purpose), driving licenses issued (number, type, category), annual receipts from road taxation, etc.

Nigeria Police/Federal Road Safety Commission: generate data on road crashes (total, fatal, serious, minor), road crash casualties (total, persons killed, persons injured), causes of crashes, percentage distribution of road crashes and casualties by state, traffic offences committed, prosecuted, acquitted, other road crash related data, etc. Nigerian Ports Authority supplies data on vehicles imported into the country through the ports, CKD imported into the country through the ports, goods evacuated to the ports through the road mode, other qualitative and quantitative data such as volumes and types of tyres imported, spare parts, etc.

Other agencies where data could be sourced on road transport sub-sector include; Road Transport Employers Association, National Union of Road Transport Workers, Road Haulage Firms, State Mass Transit Agencies, Agricultural Development Projects, Nigeria Custom Service, etc.

Rail Transport

Nigerian Railway Corporation (NRC) provides data on the following, among others: passengers and goods carried; freight tonne-kilometre; passenger kilometer; length of rail track; number and condition of

locomotives and coaching stock; number and conditions of rail cars; accidents and casualties on railways; charges and revenue; kilometres from Lagos terminus; kilometres from Port Harcourt terminus; rail facilities; other qualitative data.

Nigerian Ports Authority (NPA): provides data on goods evacuated to the Nigerian seaports through the rail mode; rail equipment, wagons, locomotives, etc. shipped to Nigeria; other qualitative data on rail-related imports.

Air Transport

FAAN, Federal Ministry of Aviation and Association of Private Airline Operators: These agencies and association generate data on: passengers carried and passenger-kilometre (domestic, international); cargo tonne carried and cargo tonne-kilometre (domestic, international); mail volume (domestic, international); domestic aviation operations (aircraft movement, passenger movement, cargo movement, mail movement). Other data include: aircraft–kilometer (domestic, international); international aviation operation (aircraft movement, cargo movement, passenger movement, mail movement); charges on passengers and cargo services (domestic, international); capacity utilization (airports, aircrafts); domestic air distances; international air distances from Nigeria; list of registered airlines and aircrafts; aviation accidents and casualties; causes of aviation accidents; aviation facilities; other qualitative data.

Pipeline Transport

Nigeria National Petroleum Company (NNPC)/ Subsidiaries: provides data on volume of petroleum products transported to the various locations of depot through the pipeline mode; volume of gas piped to industrial plants; number of depot served by pipeline; inventory of pipeline facilities; other qualitative data on pipeline transport; number of pipeline vandalization and impact data. Nigerian Ports Authority gives data on goods evacuated to the ports through the pipeline mode.

State Water Corporations provide data on volume of water pumped to various cities and urban centres through their pipeline network, water pipeline inventories, etc.

Water (Ocean) Transport

State-Owned Mass Transit Agencies (Riverine States) / National Inland Waterways Authority: These agencies generate data on: number of passengers carried and tonnage of goods carried on domestic routes; length of rivers in Nigeria; navigation statistics of rivers (dry and wet seasons); capacity and net registered tonnage of inland waterways ferries and other vessels; existing ferry route; qualitative data on inland water transportation in Nigeria; accidents and casualties on inland waterways; causes of accidents on inland waterways, etc.

Nigeria National Petroleum Company (NNPC)/Pipeline Product and Marketing Company (PPMC): provide data on volume of crude oil and refined products shipped outside the country; volume of petroleum products shipped into the country; distribution of petroleum products by barges, etc.

Nigerian Ports Authority provides water transport data on the following, among others; Ships entering Nigeria from overseas; ships cleared to overseas; net registered tonnage for ships entered from abroad; net registered tonnage of ship cleared to abroad; oil shipment; non-oil shipment; ship accidents at ports; causes of accidents at ports and its casualties; cargo throughput; container traffic; international passenger traffic; goods evacuated to the Nigerian seaports through the water mode; analysis of import cargo; analysis of export cargo; labour productivity at ports; turn-round time of ship; berth occupancy rates; personnel strength of ports; personnel wastages at ports; inventories of port facilities; qualitative data on water transportation and ports.

Other sources of data for water transportation in Nigeria include: Niger Dockyard, National Maritime Authority, National Shippers Council, International Maritime Organisation, etc.

Transport Manpower Development Data

Data on transport manpower can be sourced from the following institutions: Maritime Academy of Nigeria, Oron; Nigerian Institute of Transport Technology, Zaria, Nigerian College of Aviation Technology, Zaria.; Nigerian Universities and Polytechnics, etc.

General Transport Data

Federal Office of Statistics: It publishes data on transport sector's contribution to Gross Domestic Product by various modes (road, rail, ocean and air); production and imports of road motor vehicles and accessories; total vehicle stock and vehicle in use; value added in the transport sector, etc.

Central Bank of Nigeria: publishes data on loans and advances to the transport sector; cost of fund to the transport sector; Federal government expenditure on the transport sector, etc.

State Budget Offices provide data on State governments' expenditure on the transport sector, etc.

National Meteorological Centre: is responsible for data on weather forecast for the aviation maritime sub sectors; weather forecast for other travelers outside the aviation sector, etc.

It is important to stress that transport data, particularly secondary data are published in both general and specialized outlets. The general outlets include Annual Abstract of Statistics, Digest of Statistics and Social Statistics of Nigeria published by the Federal Office of Statistics. The second of the general outlets are publications of the Central Bank of Nigeria such as Statistical Bulletins, Economic indicators of Nigeria, etc. The specialized outlets are outlets that are exclusively dedicated to transport data. These outlets include publications of the Nigerian Railway Corporation, Nigerian Ports Authority, Federal Ministry of Transport, Federal Ministry of Aviation, Federal Ministry of Works, Federal Urban Mass Transit Agency, etc.

Prominent among these publications are Annual Reports and Accounts, Digest of Transport Statistics, Aviation Statistics, Abstract of Port Statistics, etc. It is also important to stress that some of these transport data are published in international outlets such as the World Bank and African Development Bank statistical bulletins.

Primary-transport data are mostly found in post-graduate thesis of most Nigerian universities where the studies relied on primary data. They are also found in commissioned studies of the Federal Ministries of Transport and Aviation, parastatals, African Development Bank and the World Bank. A feature of primary transport data is that they are usually restricted, that is, they are not all readily accessible for public use.

IV. General Features of Nigerian Transport Data

A review of the various existing transport data in Nigeria shows some distinct features about its structure.

(a) Modal divide: Transport data in Nigeria are usually structured along modal divide which include rail, road, air, and water (ocean). Pipeline transportation data are still sketchy and in most cases not accounted for in general transport data publications. Within specific modal structure, data on network, nodes/terminal, flows and impacts are reported, but are usually not harmonized for ease of understanding and for establishing functional relationships.

(b) Report format: Most transport data in Nigeria are reported in aggregate as national figures. There are, however, isolated cases of disaggregation on state basis, individual airports, ports, etc. Beyond the state level, there are no local government based data. Also transport data in Nigeria are usually scanty along rural-urban divide. For instance, road accident statistics are presented for the whole nation and the various states. Road accidents and associated casualties by local governments and rural-urban classification are usually not published. They are hidden in police records, so also are road accidents and casualties along major highways that cut

across various local governments and states such as Lagos-Ibadan expressway, Kaduna-Kano expressway, etc. These data are important for evaluating road safety measures required for individual highway. There is a high level of standardization among related data locally. For instance, most road networks are expressed in kilometers while freights are in tonnage. Also, most transport data in Nigeria are reported yearly. There is little evidence of monthly or quarterly transport data which are quite necessary for evaluation of time series fluctuations.

(c) Tools of Presentation: Transport data are presented in Nigeria with the use of tables, pie charts, bar charts, graphs and maps. Analyses seldom go beyond percentage share or distribution. Transport development indicators which are in most cases in index form are hardly shown. Secondly, projections are usually not found in published transport data in Nigeria as it is usually done for population data. Projection of transport data and indices are mostly found in private research papers and commissioned studies.

It is important to note that the features above and their scope vary in depth from mode to mode and within the same modal system.

V. Shortcomings of Nigeria's Transport Data and its Implications

A critical examination of transport data in Nigeria revealed the following structural shortcomings or inadequacies. There is the general absence of regular National Transport Surveys required for generating requisite data for planning. No serious National Transport Survey has been conducted since 1981 when Louis Berger was commissioned by the National Transport Coordination Commission. The report was submitted in 1984. The follow up was the National Transport Survey and Projection (NTSP) commissioned by the Federal Ministry of Transport in 2000, which seven years later, has not moved from the pilot survey for Port Harcourt only. It means that for over two decades Nigeria has not conducted any National Transport Survey. The implication is that no serious planning has been done for the transport sector as a whole since the 1981-1985 Plan.

Transport data in Nigeria are hardly sufficient for establishing relationships. For instance, data on licensed vehicles or newly registered vehicles, even though not comprehensive, are published but no indication of average kilometer traveled to really show whether travel rate is increasing or decreasing. Travel rate is vital when examining changes in road crashes. Also transport-development indicators along modal classification are mostly lacking. Some of these include road ton-kilometer per Naira or Dollar of Gross Domestic Product (GDP), rail ton –kilometer per Naira or Dollar of GDP, water ton- kilometer per Naira of GDP. Others are the mode (road, rail, air, water) related passenger kilometers per capita.

There is the general absence of projected data in officially published data. Published data on transport in Nigeria should go beyond just what is. They should include what should be in the future based on scientifically determined projection techniques. Projected transport data are mostly found in commissioned studies or reports, which should not be so. They should be in official data outlets. The absence of continuous traffic flow data and projections for most Nigerian cities is partly responsible for the chaotic nature of urban transportation in Nigeria in terms of congestion, parking problems, etc. The projected transport data could assist planners to re-examine their position in the future when they evaluate their projected data with reality on ground. It will help in identifying what went wrong and provide the basis for improved forecasting. The absence of these projected data is denying Nigeria of the potential benefits thereof.

Nigeria's transport data is replete with too many provisional data. This is often due to non-rendition or late rendition of data to the collating agencies from the constituent units or incomplete data form these units. This means that the published data are usually under-estimation of the reality in the transport sector. Closely related to this is the fact that published transport data in Nigeria may not serve the current purposes. For instance, the 1999 edition of the Annual Abstract of Statistics may not be out until the year 2003. The transport data in the publication will terminate in 1998. For a good research and planning conducted in 2003, it should at least cover up to 2002. But most often they are not available, which makes currency of research output to be very poor in terms of data.

Transport data in Nigeria exhibit inconsistencies in figures emanating from the same source and conflicting data on a particular issue from different official sources. One visible example is the road crash data emanating from both the Police and the Federal Road Safety Commission (FRSC). The figures are irreconcilable and suggest that one of the agencies is 'polishing' its figures or has what is called 'press figures'. Apart from the incidence of 'polished or press data', computational errors or errors of addition abound in published data. Errors of addition make usage of data often difficult because researchers and planners will not know where the error comes from and how to resolve it. Computational errors in road crash data in Nigeria are well documented (Arosanyin 2004). An extract from it is shown in Table 1, which is just a tip of the iceberg in computational errors in transport data documentation in Nigeria. These inconsistencies in figures mean data input into the planning process is 'questionable', which will ultimately lead to 'questionable output', and incorrect placement of Nigeria in international comparison.

Table 1: Addition Errors in Road Crash Data

Source	State	Year	Fatal cases	Serious cases	Minor cases	Total as published	Correct total
FRN(1998)	Edo	1996	290	506	438	1,103	1,234
FRN(1998)	Bayelsa	1997	124	144	33	271	301
FRN(1995)	Nigeria	1991	6,513	8,385	6,275	65,658	21,173
FRN(1996)	Anambra	1991	47	51	36	2,142	134

Source: Arosanyin 2004:489.

There is the absence of many requisite transport data across modes. In road transport such data include non-motorized transport, vehicle stock, vehicle kilometre traveled (VKT), etc. Closely related to this is the fact that transport data in Nigeria are not regularly collected and published. The implication is that Nigeria is yet to comply fully with international conventions. Also, background information to transport data presentation in Nigeria is scanty and, is hardly enough to give first time user any idea of past developments. Poor and wrong classifications of variables in a data set also exist in transport data in Nigeria. Some data are lumped

together which makes analysis impossible when the interest is just on one of the variables. An example is the combination of output of railway with the output emanating from the pipeline mode of transport in the Statistical Bulletin of the Central Bank of Nigeria, sourced from the Federal Office of Statistics (CBN 2003). The extract is shown in Table 2.

Table 2: Transport Output at 1990 Constant Prices (1998-2003) (₦M)

Mode	1998	1999	2000	2001	2002	2003[1]
Road	6,020	6200.6	6392.8	6667.7	7910.3	8003.7
Rail and Pipeline	1.2	1.2	1.3	1.4	1.4	1.5
Water	293.9	298.9	305.8	313.2	287.9	286.7
Air	200.4	205.5	213.7	222.2	264.5	284.0
Transport Services	458.8	550.5	594.6	654.0	752.4	762.2

[1]/ provisional, *Source: CBN (2003:243-244).*

From Table 2, the output of rail transport was lumped with the output of pipeline transport. They are not compatible as they are distinct modes of transport. The question is, for a researcher interested in examining the contribution of pipeline transport to the economy, which figure is appropriate? Using the above output figures as published will amount to over-estimation. Another problem with the above classification is the treatment of 'transport services'. The question is which transport services? Transport services cut across the various modes of transport namely road, rail, air, water and pipeline. Are these estimates not part of the ones already computed under the various modes? If they have been separated from them, are the transport services for passenger or freight or both? A look at previous publications shows that this 'transport services' is a new entry into the transport data set. If it is a new entry, it ought to have been explained in the explanatory note to the data in order to avoid ambiguous interpretation. Another area is the lumping of expenditure on transport with communication, which is no longer in vogue (see CBN 2003:203-212).

The above structural shortcomings make transport data emanating from Nigeria to be incomplete, less valuable and less suitable for planning and for international comparison. Government transport plans and policies are conceived and implemented without requisite data. This may account for

the various bottlenecks in the transport sector as progress is difficult to measure and evaluation very weak. Apart from the consequences at the transport sector level, the poor transport data beams wrong signals to the rest of the economy. For instance, no institution in Nigeria today can give a correct estimate of the vehicle stock on Nigerian roads. Without this data it may be difficult to correctly estimate the volume of premium motor spirit (PMS) required daily in order to determine the supply mix of domestic refineries and import to meet local demand. At the international level, development indicators in the Nigerian transport sector are often lacking or scanty. This makes international comparison very difficult. This assertion is evident in the international transport data sections of both the African Development Indicators and World Development Indicators published by the World Bank (see World Bank 2000:255-259 and 2005:175,303).

In spite of these shortcomings and consequences, there are ample rooms for improvement in transport data in Nigeria if certain reforms and attitudes are accepted and implemented. These reforms derive directly from the causes of the data problems.

VI. Causes of the Data Shortcomings

The causes of the deficiencies of Nigeria transportation data can be categorized into two. These are; the general causes and specific causes.

General Causes: Nigeria is a developing country with its inherent limitations and constraints which hinder the effective, efficient and consistent gathering, storage and retrieval of data for planning purposes. These limitations include poor economic and financial base, lack of facilities and low political will, which translate to poor database (see Muhammed 1983; Adamu 1990; Ajayi 1991; Ojameruaye and Soyibo 1995; Arosanyin 2004).

Poor database is a feature of developing nations as opposed to the well articulated data system of industrialized nations. In most developing countries including Nigeria, investment in data gathering and management are still considered wasteful because they do not yield any 'visible benefits'

at least in the short-run. Given the financial position of most developing countries vis-à-vis, low per capita income, debt crisis, etc, resources are seldom allocated for data investment. The end result is usually a weak database. Since Nigeria is a developing nation it is, therefore, not immune from poor database of which transportation data is a part. Second, is the "Nigerian factor", which is a combination of factors that are socially and culturally entrenched in the Nigerian society which limit the quality and adequacy of any database. Prominent among these factors is the attitude of the ruling elites to data generation and management. The insensitivity of the ruling elite to accurate and consistent data has led to the use of 'falsified' data for political and economic gains, and not necessarily for planning purpose. Even where they are used for planning they often lead to unfulfilled expectations because the data were 'spiced' or 'polished'.

The bulk of the data system in Nigeria is full of conflicting figures on the same issue. For instance, Garba (1999:151) observed in her study on structural adjustment and women's share of employment in Nigeria that;

> *"Reliability of data poses considerable problems especially with respect to two years; 1990 and 1991. Four publications of the Federal Office of Statistics report different data set*".

From the above, therefore, if transport data in Nigeria are not reliable, it is just a reflection of the data culture in Nigeria.

Specific Causes: These are causes that are peculiar to the transport sector and its data generation capacity and constraints. Prominent among these causes are the following:

- Poorly equipped and inadequately manned Planning, Research and Statistics Departments of the various transport and transport-related parastatals. At times fund for data gathering may not be released, may be released late and/or may be released but inadequate to cover the required scope. This may be the cause of data-gap.
- Poor data storage and retrieval system. The use of computers is still not advanced which often lead to errors of varying degrees especially transcription and summation.

- The bulk of transport data gathered through the filling of proforma and questionnaires suffer setbacks due to late rendition of data returns and poor and in some cases non response. This often causes data-gap, incomplete data and sometimes provisional figures.

The above general and specific causes, among others contribute individually and collectively to the poor transportation database of Nigeria. While acknowledging the state of transportation data in Nigeria and its deficiencies for planning, there are still ways of correcting or improving them.

VII. What Must We Do?

For Nigeria transport data to be reliable, realistic, valuable and suitable for planning and international comparison, the government must of necessity do the following, among others:

- Nigeria as a country must invest heavily on data generation across the economy of which transport is a subset. The lack of investment in data gathering in Nigeria as a whole is having its toll on the transport sector too. An improved data culture in Nigeria will definitely affect the transport sector positively.

- Reduce duplication of similar transport data gathering and documentation efforts to free scarce financial and human resources and reduce conflicting transport data.

- Reactivate, equip and staff the Planning, Research and Statistics Department of concerned agencies for result-oriented data collection objective. The Federal Office of Statistics should be reorganized to meet the demands and expectations associated with any apex data management outfit. There is the need for the Federal Office of Statistics (FOS) now National Bureau of Statistics (NBS) to engage Transport consultants to guide the agency on what data are required in the various modes of transport and how to classify them. Also, the National Transport Data Bank (NTDB) should be reactivated, staffed and funded to fulfill its mandate. The statutory custodian

of NTDB is the Nigerian Institute of Transport Technology (NITT) Zaria. At present the bank is only on paper.

- Fund transport surveys on each mode and issues cutting across modes regularly. A good transport database for planning is anchored on regular transport survey.

- A highly computerized data retrieval system must be put in place in all the outfits responsible for specified transport data collection to reduce collation and transcription errors.

VIII. Concluding Remarks

Data play a crucial role in transport planning. Most plan failures are attributable in part to data problems. For data to be highly useful for planning and international comparison there is the need for the government to adequately fund data gathering investment, harmonize the various agencies responsible for transport data collection and publication, and computerize data storage and retrieval systems.

The task of generating transport data is enormous. The government through the Federal Ministry of Transport must be interested in funding transport data collection projects. There are still many untouched areas of transport data which must be adequately addressed by the government. These transport data areas include bicycle, bicycle usage, bicycle-kilometre, wheelbarrow, carts, camels, donkeys, canoes, passengers and freight passing through inland waterways, walking, etc. Without a reliable and consistent transport data, transport planning and coordination will be chaotic and given the pivotal role of transport in any economic system, the other sectors may be prone to distortions vibrated into them through the transport sector anomaly.

REFERENCES

Adamu, S.O.(1990) "Government Statistical Services: Problems and Prospects" Paper presented at the Workshop on National Statistics Production, organized by Federal Office of Statistics, Abuja Oct. 29- Nov. 1.

Adenikinju, A. and Bello, A. (1998) "Data Reliability: Evidence from Nigeria's Energy Sector" *Journal of Economic Management* Vol. 6 No 1 :143-159.

Ajayi, O.O.(1991) "Problems of Data Collection in Nigeria" Proceedings of the National Conference on the Establishment and Operation of Data Banks in Nigeria, Abuja .26-28 August:8-16.

Arosanyin, G.T. (1999) "Casualties on Nigerian Roads (1980-1996)" *Nigerian Journal of Economic and Social Studies* Vol. 41 (3): 489-504.

Arosanyin, G.T. (2002a) "Who Collects What Data for Transport Studies in Nigeria?" Working Paper presented to the Federal Ministry of Transport, Abuja (unpublished).

Arosanyin, G.T. (2002b) "Transport Data Analysis in Nigeria" Working Paper presented to the Federal Ministry of Transport, Abuja (unpublished).

Arosanyin, G.T. (2002c) "Structure of Transport Data in Nigeria". Working Paper presented to the Federal Ministry of Transport, Abuja (unpublished).

Arosanyin, G.T. (2004) "Road Accident Data Problems in Nigeria: An Agenda for Reform" *Indian Journal of Transport Management*_Vol.28(4):278-504.

Baster, N. (ed) (1972) "Measuring Development" London, Frank Cass

Benson, D. and Whitehead, G. (1975) "Transport and Distribution", London: W.H. Allen.

Casley, D.J. and Lury, D.A. (1981) "Data Collection in Developing Countries", Oxford; Clarendon Press.

Central Bank of Nigeria (1995) "Statistical Bulletin" Vol. 6 No. 1. Lagos: Central Bank of Nigeria.

Central Bank of Nigeria (2003) "Statistical Bulletin" Vol.14 Dec. Abuja: Central Bank of Nigeria.

Conyers, D. and Hills, P. (1991) "An Introduction to Development Planning in the Third World" Chichester: John Wiley & Sons.

Drenowski, J. (1974) "On Measuring and Planning the Quality of Life". The Hague: Mouton.

Expenditure Committee (1972) "Urban Transport Planning, Second Report from the Expenditure Committee". Session 1972-73, House of commons Paper 57:I-III, London: HMSO.

Fadare, O. and Ogunsanya, A.A. (1989) "Planning Without Data: The Example of the Nigerian Urban Transport Planning Situation". *Studies in Environmental Design in West Africa* (8):56-66.

Federal Ministry of Aviation (1997) "Aviation Statistics 1990-1996" Abuja: Federal Ministry of Aviation.

Federal Ministry of Transport (1996) "Digest of Transport Statistics" Abuja: Federal Ministry of Transport.

Federal Republic of Nigeria (1988) "Social Statistics in Nigeria 1988" Lagos: Federal Office of Statistics.

Federal Republic of Nigeria (1994) "Digest of Statistics" Lagos: Federal Office of Statistics.

Federal Republic of Nigeria (1998) "Annual Abstract of Statistics" 1998 edition. Abuja; Federal Office of Statistics.

Garba, P.K. (1999) 'Structural Adjustment Budget Structure and Women's Share of Employment in Nigeria's Federal Civil Service' *The Nigerian Journal of Economic and Social Studies* Vol. 41(1):125-159.

Herrick, B. and Kindleberger, C.P.K. (1983) "Economic Development". New York: McGraw Hill Books CH 15.

International Road Federation (1999) "World Road Statistics" Washington DC: IRF.

Jacobs, G.D., Aeron-Thomas, A. and Astrop, A. (2000) "Estimating global road fatalities" *TRL Report 445* Crowthorne: Transport Research Laboratory.

Moroney, M.J. (1953) "Facts from Figures" Harmondsworth; Penguin Books.

Muhammed, B. A.(1983) "Production and Use of Statistics in Nigeria". Proceedings of a National Workshop. Ibadan: NISER.

Nigerian Institute of Social and Economic Research (NISER) (2001)" NISER Review of Nigerian Development 2000 Ibadan: NISER.

Nigerian Ports Authority (1996) "Annual Reports and Accounts" Lagos. NPA.

Nigerian Ports Authority (1997) "Abstract of Port Statistics"Lagos: NPA.

Nigerian Ports Authority (1998) "Abstract of Port Statistics" Lagos: NPA.

Nigerian Railway Corporation (1995) "Annual Report" Lagos: Nigerian Railway Corporation.

O'Barr, W. et al (1973) "Survey Research in Africa: Its Applications and Limits", Evanston; Illinois Northwestern University Press.

Ojameruaye E.O. and Soyibo, A (1995) "Data and Economic Policy Management in Nigeria" In A. Iwayemi (ed) *"Macroeconomic Policy Issues in an*

Open Developing Economy: A Case Study of Nigeria". Ibadan NISER:151-168.

Pas, E. (1986) "The Urban Transportation Planning Process". In Hanson, S. (ed) *The Geography of Urban Transportation* New York: Guilford Press: 49-70.

Starkie, D.N.M. (1976) "Transportation Planning, Policy and Analysis" *Urban and Regional Planning Series* Vol. 13. Oxford: Pergamon Press.

Stolper, W. (1966) "Planning Without Facts" Cambridge Mass. Harvard University Press.

Taylor, L. (1979) "Macro-Models for Developing Countries" New York: McGraw-Hill.

Todaro, M.P. (1980) "Economics for a Developing World" London: Longman, 361-374.

Tolley B.S. and Turton, B.J. (1995) "Transport Systems, Policy and Planning" Essex: Longman.

UNESCO (1974) "Social Indicators: Problems of Definition and Selection" Paris: The UNESCO Press.

UNESCO (1976) "The Use of Socio-Economic Indicators in Development Planning" Paris: The UNESCO Press.

Witheford, D.K. (1976) "Urban Transportation Planning" Transportation and Traffic Engineering Institute of Traffic Engineering New Jersey: Prentice-Hall Inc. P.502-558.

World Bank (2000) "African Development Indicators" Washington DC: The World Bank: 255-259.

World Bank (2005) "World Development Indicators" Washington DC: The World Bank:

Tariff and Factor Allocation in a Small Open Economy: Nigeria

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Using a small three-sector static general equilibrium model, this paper examines the likely impact of import tax reduction and its subsequent elimination on factor re-allocation under alternative exchange rate regimes in Nigeria. The study observed that the patterns of re-allocation are quite qualitatively similar under alternative exchange rate regimes. Particular findings suggest that, under both exchange rate regimes, as import tariff is reduced progressively, the services industry loses labour employment to the manufacturing and agricultural sectors while the agricultural sector loses capital to both the manufacturing and service sectors. Under the different exchange rate regimes, the manufacturing sector is a net employer of labour and capital. The study observed that the amount of re-allocation under flexible exchange rate is higher than under a fixed exchange rate regime. Furthermore, labour is observed to be relatively more mobile amongst sectors than capital. However, in general, percentage factor reallocation is considered small as no sector lost significant amount of factor employed to other sectors. These findings indirectly points to the limited role of trade policy in generating employment and enhancing efficiency in production in a small open economy.

Keywords: **Tariff Reduction, Exchange Rate Regime, Intra-Industry Reallocation.**

JEL Classification**: F160, F310, O240.**

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I Introduction

Undoubtedly, the theory of tariff (tax on external trade) is one of the difficult areas in international trade literature. Disregarding the several secondary effects of tariff, the literature suggests that the immediate effect of tariff (at least under optimal market conditions) is to raise the price of the good on which duty is levied. Consumption will fall as the price of the good in the domestic market has increased, while domestic production (hence, employment) at the same time increase and imports fall. In other words, the direct impact of tariff will be on prices, consumption, production (employment) and imports. The literature, however, suggests that a "production cost of protection" usually exist which is the difference in cost arising from domestic production rather than importing the good. In other words, tariff brings about (mis-) allocation of resources. Interestingly, these results are by and large true even within the context of more refined general equilibrium analysis.

In another way, the traditional Stolper-Samuelson theorem analyses how tariff can (re) allocate factors. Specifically, the theorem suggests that a tariff on the import good means that domestic prices of importable goods will rise. Domestic producers then change their production plan, increasing production of the import good and decreasing production of the export good. Factor intensity will change in both sectors. The reason being that, as producers start expanding production of importable goods they are especially eager to employ more of the input that they use more intensively. Hence, the relative price of that input which they use more intensively is bid up. Producers then try to substitute other (cheaper) factors for the more expensive input. Hence, factor intensity will change due to tariff changes. In a more general form, the theorem suggests that tariff favours the factor used intensively in the import-competing sector, because, as the tariff raises the price of the import good, domestic production of it will expand, and the demand for the factor used intensively in this industry

will increase, and its price will rise. In the short run, protection could lower a country's welfare. However, in the long run internal economies can be reaped and there will be an outward shift in the country's production possibility frontier.

However, empirical studies do not tend to be as conclusive as theoretical constructs in terms of the impact of tariff on factor allocation, employment and growth. Studies like Mclure (1989), Choi (1997) and Skinner (1987) have examined the impact of tax generally on factor allocation, growth and consumption. Other related studies include that by Blejer and Cheasty (1990), Khalizadeh-Shirazi and Shah (1991), Tanzi and Zee, (1997), Easterly and Rabelo (1994) and Mendoza, Razin and Tesar (1994). Many of the above studies have been largely partial in analysis. This partial analysis have been criticised because they omit the terms of trade effects and neglect other features that can be well capture only in a disaggregated CGE model (see Hamilton and Whalley 1985a and Mendez and Rouslang, 1989). Though most of the general equilibrium analyses have focused on welfare gain (like Hamilton and Whalley, 1985; Cox and Harris, 1985; and Wigle, 1988) it is possible, as demonstrated by Polo and Sancho (1990), that other economic impacts could well be analysed in a general equilibrium framework.

This paper examines the impact of tariff on domestic factor allocation in Nigeria and then compares the results with the predictions of the traditional tariff theory. To accomplish this task, the paper develops a static Computable General Equilibrium (CGE) model that allows for an explicit evaluation of alternative tariff policy in Nigeria (though with many competitive features). Specifically our focus is on import duty as against export duty because it is the more widely used, relevant and analyzed theoretically. The rest of the paper is arranged as follows. Section II discusses the practice of tariff in Nigeria in the recent past[1]. Section III reviews the literature. Section IV presents a brief description of the CGE model, the solution strategy and summarizes the results of the policy simulations. Section V presents the results and the policy implications of the results. Section VI concludes the paper.

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[1] Data on the structure of the Nigerian factor market is generally scarce and unreliable; hence we omit a discussion of the stylised features of the Nigerian factor market.

II. Tariff System during the Liberalisation Era

Trade policy and exchange rate reform measures are the most profound policy reform measures introduced since 1986 in terms of getting prices right and boosting productivity and employment. At the commencement of the reform measures, it was argued that the domestic currency, which was administratively fixed by the relevant monetary authority, was highly overvalued (see Olofin 1992; Abebefe 1995; and Agbaje and Jerome 2004).

Domestic economic policy in the late 1980s was directed at achieving sustained economic growth and development under the structural reform efforts. Specifically, policy measures were aimed at stemming the severe pressures on domestic prices and the external sector, stimulating private sector investment and generating more employment. In line with the policy objectives, fiscal policy (including tariff measures) was generally aimed at increasing revenue, guaranteeing effective protection to domestic industries, reducing escalating transport cost and promoting Research and Development (R and D). Hence, import duties on a number of intermediate products (such as battery parts) used in local industries were reduced. Import duty on component parts of commercial vehicles and tractors was also reduced from 25 to 5 per cent by 1989. Major exchange rate re-alignments were needed if the goal of stimulating agricultural production and export was to be achieved. It should be noted that exchange rate reforms were aimed not only at boosting domestic production but also aimed, amongst other things, at ensuring external balance and improving competitiveness. Hence, it was expected that the prices of (non-oil) exports will rise in domestic currency value terms if major reform measures (in the form of series of devaluations) were carried out. The thinking was that a rise in the price of tradables in domestic currency term will lead to re-allocation of resources and stimulate production and employment, particularly, amongst the import-competing firms. Hence, the rate at which the domestic currency will exchange for major international currencies were left to be determined by market forces, with some intervention by the government as deemed appropriate (see Ajayi, 1988; Adubi and Okunmadewa, 1999; Odubogun 1996; and Sanusi,

2004 for detailed discussion of various exchange rate measures introduced since 1986).

The broad focus of tariff policy in the early 1990s was the provision of effective protection for local industries and enhancement of locally sourced inputs. Hence, import duties on a number of products (such as jewellery, tooth brush and wheel-barrow) were increased by 1991. Further, the government set up two study groups in 1991 to review the entire tax structure and administration with a view to improving tax collection through reducing tax evasion and encouraging voluntary compliance with tax regulations. Hence, there was the review of the import duties on a number of items and inputs used in manufacturing with a view to stimulating production. Products affected included steel products, spinners and dyers, automatic circuit breakers, etc. By 1992 when the generation of budget surplus became a major thrust of fiscal policy, the government still found itself engaging in tariff reforms encompassing the removal of import duties on CKD (Completely Knocked Down) components and spare parts for commercial vehicles, cement, and inputs used in the cement industry and the reduction of tariffs on some other imported goods, including polyester chips, drugs and fully built-up commercial vehicles. Between 1993 and 1996, fiscal policy was aimed at achieving overall macroeconomic stability. Hence, tariff measures were generally unchanged. The main focus of fiscal policy during this period was to ensure fiscal viability through aggressive revenue drive and public sector expenditure restrain. Hence, much attention was given to the value-added tax that was introduced effectively in 1994. By 1998, the focus of fiscal policy was to stimulate the economy by raising the level of disposable income of households through generous personal and corporate tax relief. There was a review of import duty rates to protect local industries and stimulate competition. The government further liberalised the imports of used vehicles and motorcycles at the appropriate duty rates to enhance government revenue from import duties. The number of items in the import prohibition list was reduced, and the items were made dutiable at rates ranging between 20 and 150 per cent. Generally, average import tariff have been declining over time for most intermediate and many final goods.

Some specific trade liberalization measures undertaken under the SAP include the removal of bureaucratic controls on trade. Furthermore, the import licensing system, together with exchange control on current transactions was abolished as soon as exchange liberalization began in September 1986. The abolition of commodity marketing boards was also followed by abolition of the export prohibition for most items and a reduction in the number of prohibited imported items. The early years of the reform saw the introduction of a new export finance facility and a financing and rediscounting facility was put in place to assist private exporters by providing refinancing for the export of both agricultural and non-agricultural products. These measures were supported with the introduction of a duty drawback/suspension scheme which was aimed at enabling exporters to import raw materials and intermediate products for use in the manufacturing of export products. It could be observed that trade policy measures were not only aimed at diversifying the export base of the country, but also to add value to the export of agricultural produce. By 1995, more emphasis was placed on market-oriented exchange rate system to enhance export competitiveness. A new seven-year tariff reform programme was also introduced in 1995 with frequent adjustments and changes to the tariff structure. As at 2004, the applied tariff rate averaged about 25 percent, with some exceeding 100 percent. Currently, Nigeria maintains a 150 percent ceiling rate binding on all agricultural goods. In general, recourse to quantitative restrictions on imports is on the decline, although Nigeria still maintains a ban on imports of such products as maize, sorghum, millet, wheat flour, vegetables and plastic articles. Nigeria also enforces a ban for health reasons on all types of meat.

The above review suggests that trade policy in Nigeria has focused both on relative price incentives (in terms of exchange rate and tariff adjustments) and quantitative restrictions in term of quota and outright ban. As discussed earlier the broad objectives of trade policy practice in Nigeria are the diversification of export earnings from oil to non-oil, stimulation of production and, hence, generation of employment. Akin to this is the fact that trade policy practice in Nigeria aims at minimising external imbalance. In other words, it is aimed at curtailing incessant importation of consumer goods and protecting domestic production.

III. A Review of Related Literature

Conceptual Framework

The basic channel through which trade policy (in the form of tariff changes) impacts on the factor market is through the impact of trade policy on relative prices. This proposition is essentially relevant in a small open economy (i.e., an economy that has no power to affect international prices of traded goods). Another relevant assumption is that the input market (particularly the labour market) functions well such that nominal and real wages are flexible[2]. Hence, domestic prices of imports (p_m) and exports (p_x) are determined by world prices and policy variables such as exchange rate, subsidies, and tariffs. Finally, it is usually assumed that the price of non-tradable goods (p_n) is determined largely by supply and demand conditions in the home country. Hence, allocation of resources will depend to a large extent on these three prices, while in the long-run resource allocation will depend on relative prices only, such as p_x / p_m and p_x / p_n. For a given trade liberalization episode, say a reduction in tariffs, p_x / p_m will increase, providing the necessary incentive for inputs to move into the export sector from the import sector. It is important to note that whether (p_m) falls or (p_x) rises will make a lot of difference in the short-run and will depend, amongst other things, on the exchange rate regime in place. In general, as plants or firms raise their efficiency in response to fiercer foreign competition (due to lower tariff), workers are displaced and productive capital needs to be put to alternative use. This is the prediction of the traditional trade theory in a Ricardian sense, in which factors are allocated based on comparative advantage. In the next section we review the observations of empirical studies on the subject.

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[2] Other assumptions that are carried along are that we have constant returns to scale and that domestic and import goods are perfect substitutes.

Recent Empirical Studies

In a recent study, Melitz (2003) attempts to characterize the impact of trade on aggregate productivity by assuming that producers have heterogeneous productivity levels and models intra-industry reallocations among firms under increasing trade liberalization. The study observed that amongst firms that are faced with increased foreign competition there is a shifts in the relative performances of monopolistic competitors reflected in inter-firm reallocations towards more productive firms. By making alternative assumptions, Eaton and Kortum (2002) model heterogeneous producers in a perfectly competitive environment. The study assumes that constant-returns producers are subject to idiosyncratic shocks while consumers search internationally for lowest prices of each output variety. The study argues that foreign trade allocates demand to producers able to supply output at the lowest price. The study argues further that efficient technology (i.e., low production costs), minimal geographic impediments (i.e., low transportation costs) and limited institutional distortions (i.e., low transaction costs) allow producers to price competitively. A common front in the findings of the two studies is that they both predict productivity-enhancing reallocations, within industries, induced by trade. Hence, the proposition that protectionism shelters inefficient producers and that openness makes more productive firms flourish seems to be corroborated by their findings.

Several other studies have provided evidence in support of 'self-selection' into export markets by more productive plants. Such studies include those by Clerides, Lach and Tybout (1998) for Colombia, Mexico and Morocco; by Bernard and Jensen (1999a) for the U.S.; and by Aw, Chung and Roberts (2000) for Taiwan. Most of the studies are based on the underlying assumption of the existence of substantial sunk costs to enter the export markets as documented by Roberts and Tybout (1997) for Colombia and by Bernard and Jensen (1999b) for the U.S. In some respect, studies such as Hallward-Driermayer, Iarossi and Sokoloff (2002) have argued that the selection process is not necessarily driven by exogenous shocks but rather by investments made by firms in anticipation of foreign markets opening up. Haltiwanger *et. al*. (2004) argued that decisions regarding organization,

training and retooling to gain access to export markets raise relative exporter productivity in East Asia most significantly in Indonesia, the Philippines and Thailand. Hence, the study opined that heterogeneity in the performance of different investment strategies leads to trade-induced reallocation.

As argued in Haltiwanger *et. al.* (2004), trade not only facilitates the expansion of more productive firms but also causes the downsizing of less productive plants. In terms of job loss and firm downsizing induced by international trade, Aw, Chung and Roberts (2000) find that exposure to trade forces the exit of the least efficient producers in Korea and Taiwan. Also, Pavnick (2002) finds that market share reallocations contributed significantly to productivity growth following trade liberalization in Chile. Finally, Bernard and Jensen (1999b) find that intra-industry reallocations to higher productivity exporters can explain up to 20 percent of productivity growth in U.S. manufacturing.

Several studies have observed some impact of international competition on factor mobility, particularly labour allocation. The evidence is generally inconclusive as some plant-panel data evidence suggest the existence of negative effect of trade policy on employment. However, it is observed that the results differ substantially across countries and studies. For example, in their study of some US firms, Klein, Triest and Schuh (2003) use establishment panel data to analyze how the pattern of gross job flows is affected by the path of the real exchange rate. They observed that changes in the trend of the real exchange rate affect reallocation of jobs but not net employment. The study went further to observe that cyclical variation of the real exchange rate induces changes in net employment mainly via job losses. As a follow-up to this study, Klein, Triest and Schuh (2004) further investigate the joint impact of tariff and real exchange rate changes in the US, with particular focus on NAFTA. The study observed that the way in which the reduction in tariffs impacted upon job flows is similar to the effect of a shift, inducing appreciation of the currency, in the trend of the real exchange rate path.

Focusing on the manufacturing sector for US firms, Gourinchas (1999) studies the exchange rate response of gross job flows at the four-digit level using data from the Longitudinal Research Database. The study observed that times of appreciation are associated with substantial job losses while times of depreciation display very limited reallocation. Furthermore, the study observed that a 10 percent depreciation increases employment by 0.3 percent in the tradable sectors, mostly due to job creation in import competing industries. Some other studies conducted for the U.S. include Aronson, Goldberg and Tracy (1999) which used CPS data and observed that exchange rate movements have a small effect on employment and that job destruction is not substantially affected. The study by Davidson and Matusz (2005) for the U.S. find higher sectoral net exports to be associated with less job destruction and more job creation, while the study by Revenga (1997) finds that in the U.S. import competing industries reduce employment overall during currency appreciations. In the study by Campa and Goldberg (2001) they observed that in the U.S. the labour market adjustment to variations in the real exchange rate is primarily through wages rather than employment. The prevalence of price as against quantity adjustment was rationalised on the bases of the fact that there exist lower labour demand which is associated with currency appreciation and it is being offset by cheaper imported inputs, including equipment and machinery.

Based on the study of some French firms, and using firm-level data, Gourinchas (1999) examines the impact of real exchange variations on gross job flows. The study observed that exchange rate appreciations reduce net employment growth as a result of lower job creation and increased job losses. The study argued that the observed patterns imply little additional reallocation as a result of exchange rate fluctuations. However, the study by Bentivogli and Pagano (1999) finds for a number of European countries a limited effect of currency value fluctuations on job flows. Studies such as Haltiwanger *et. al.* (2004) have argued that divergences in results across countries may be explained by differences in labour market institutions. This argument is corroborated by studies such as Burgess and Knetter (1998) which observed that in the G-7 countries with the most

rigid labour institutions, such as Germany and Japan, employment is insensitive to exchange rates. However, in other countries appreciations appear related to drops in employment. Using cross country data, Wacziarg and Wallack (2004) examined the extent of inter-sectoral reallocation of labour in the wake of trade liberalization events. The study finds no evidence of increased reallocation of labour across sectors defined at the 1-digit level, although they find evidence of a small increase in inter-sectoral reallocation using manufacturing data at the 3-digit level of aggregation.

Generally, it is expected that in developing countries undergoing liberalization in both the external and financial sectors, large reallocation effects are to be observed due to the sudden and substantial increase in the exposure to international competition. Though the literature on the reallocation effect of trade policy reform is quite scanty for developing countries, in a study on Chile, Levinsohn (1999) reports evidence from firm-level data during a period of tariff reductions and large swings of the real exchange rate. The paper observed that there was a tremendous amount of job churning in Chile, both in expanding and contracting industries, not associated with changes in aggregated employment. Hence, the paper argued that changes in trade exposure yield an effect on gross job flows without a substantial effect on net flows.

IV. Estimating the Impact of Tariff on Factor Allocation

Model Description

Drawing from studies by Wigle (1988), Revenga (1997) and Wacziarg and Wallack (2004), the model distinguishes three productive sectors – agriculture, manufacturing and services. The first two represents the tradable sectors while the service (which includes construction) sector is treated as largely non-tradeable. The model also distinguishes two input markets - labour and capital. Two other sectors, representing the government and external trade, complete the model. We invoke the small country assumption such that tariff will not alter the terms of trade of the country and monetary

effects are excluded[3]. This further implies that foreign prices are constant. In the short run we assume that the production possibility frontier of the economy is constant which translates to fixed stock of factors inputs. We further assume that the rate of substitution of inputs is constant for each sector but can differ across sectors.

Production and Factor demand

There are two primary factors of production – capital and labour – each of which is homogenous, mobile among sectors. The productive sector of the economy is characterized by a Leontief aggregation function between value-added index and an intermediate input index.

$$X_j = \min\left\{\frac{VA_j}{a_{vj}}, IG_j; \quad (j = 1,...3)\right\} \qquad \text{.....} \quad (1)$$

$$IG_j = \min_i\left[\frac{x_{ij}}{a_{ij}}; \quad i = 1,...3\right] \qquad \text{.....} \quad (2)$$

Where X_j *(Va$_j$)* is gross output (value added) of sector *j*; IG_j is intermediate input index of sector *j*, x_{ij} = intermediate demands and α_{ij} = input-output coefficient, a_{vj} is the value added requirement per unit of output *j*. The production possibility frontier of the economy is defined by a constant elasticity of transformation (CET) function between domestic supply and export.

$$X_i = at_i\left[\gamma_i E_i^{R_i} + (1-\gamma_i)D_i^{sR_i}\right]^{\frac{1}{R_i-1}} \qquad \text{.....} \quad (3)$$

where E_i is export supply, D_i^s is domestic supply, αt_i is CET function shift parameter, γ_i is CET function exponent and g_i is CET function share parameter. We also define composite commodity (Q_i^s) made up of domestic demand (D_i^d) and imports demand (M_i^d), which is consumed by both the household and the government. We assume that a constant elasticity of substitution (CES) exist between domestic demand and import demand.

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[3] This implies that we are dealing with a barter economy. This assumption is not expected to significantly alter our findings since we are dealing with the real side of the economy.

$$Q_i^s = ac_i\left[\lambda_i M_i^{d-\mu} + (1-\lambda_i)D_i^{d-\mu}\right]^{-\frac{1}{\mu}} \quad \text{.....} \quad (4)$$

where αc_i is CES (constant elasticity of substitution) function shift parameter, λ_i is CES share parameter and μ_i is CES function exponent. A fixed input-output matrix describes intermediate input demand as follows:

$$V_i = \sum_j a_{ij} X_j \quad \text{.....} \quad (5)$$

where V_i is intermediate demand for good *i*. Capital (K_i^d) and labour (L_i^d) produce value added according to a CES value-added function of the form:

$$VA_i = \phi_i\left[\delta_i L_i^{d(\sigma_i-1)/\sigma_i} + (1-\delta_i)K_i^{d(\sigma_i-1)/\sigma_i}\right]^{\frac{\sigma_i}{(\sigma_i-1)}} \quad \text{.....} \quad (6)$$

for each industry, where ϕ_i and δ_i are parameters for production scale and input weighting respectively, and σ_i is the elasticity of substitution. A single output is produced by each industry, under constant returns to scale. Producer behaviour is characterised by cost minimisation for each unit of output. Minimisation of factor costs subject to the constraint that $VA_i=1$ yields the factor demand per unit of value added for each industry, these demands are:

$$L_i^d = \phi_i^{-1}\left[\delta_i\left(\frac{(1-\delta_i)PL_i^*}{\delta_i PK_i^*}\right)^{1-\sigma_i} + (1-\delta_i)\right]^{\frac{\sigma_j}{(1-\sigma_i)}} \quad \text{.....} \quad (7)$$

$$K_i^d = \phi_i^{-1}\left[\delta_i\left(\frac{(1-\delta_i)PL_i^*}{\delta_i PK_i^*}\right)^{1-\sigma_i} + (1-\delta_i)\right]^{\frac{\sigma_j}{(1-\sigma_i)}} \quad \text{.....} \quad (8)$$

where producers are required to pay ad valorem taxes at rate tL_i and tK_i on labour and capital employed, respectively, which (may) differ by sector such that:

$$PL_i^* = PL(1+tL_i) \quad \text{.....} \quad (9)$$

$$PK_i^* = PL(1+tK_i) \quad \text{.....} \quad (10)$$

are gross-of-tax factor costs. PL_i and PK_i are the (income tax inclusive) cost of labour and capital, respectively

Consumption

A representative consumer has a utility function of the Cobb-Douglas type:

$$U(Q_i^{hd}) = U(D_i^{hd}, M_i^{hd}) = \sum_i ap^j \ln Q_i^{hd} \quad \text{.....} \quad (11)$$

Where $Q_i^{hd}, D_i^{hd}, M_i^{hd}$ are composite goods demand, domestic demand for domestic goods and import demand by the household. The ap^i are private (household) share parameters. Hence, the solution to the constrained optimization produces the following demand functions for both private and government sectors for *D* and *M*. The superscripts *hd* and *gd* represent household and government demand parameters respectively.

$$D_j^{hd} = \frac{adp^j((1-sp).YD}{P_j} \quad \text{.....} \quad (12a)$$

$$M_j^{hd} = \frac{amp^j((1-sp).YD}{pm_j} \quad \text{.....} \quad (12b)$$

$$D_j^{gd} = \frac{adg^j((1-sp).YG}{p_j} \quad \text{.....} \quad (12c)$$

$$M_j^{dg} = \frac{amg^j((1-sg).YG}{pm_j} \quad \text{.....} \quad (12d)$$

The following relations are to be observed:

$$\sum_j adp^j + \sum amp^j = 1; \quad \text{.....} \quad (13a)$$

$$\sum_j adg^j + \sum_j amg^j = 1; \quad \text{.....} \quad (13b)$$

$$D_i^{hd} + D_i^{gd} = D_i^d; \quad \text{.....} \quad (13c)$$

$$M_i^{hd} + M_i^{gd} = M_i^d \quad \text{.....} \quad (13d)$$

where;

adg^j and amg^j are government demand share parameters for domestic and imported goods; adp^j and amp^j are household demand share parameters for domestic and imported goods; D_i^d and M_i^d are total domestic demand and import demand, respectively; *sp* and *sg* are private and government marginal propensity to save respectively; p_j and pm_j are the market price of domestic goods and domestic price of imports, respectively; *YD* and *YG* are household and government income, respectively. This implies that final household demand (C_i) and government demand (G_i) for good i are given as:

$$C_i = D_i^{hd} + M_i^{hd} \quad \text{.....} \quad (14a)$$

$$G_i = D_i^{gd} + M_i^{gd} \quad \text{.....} \quad (14b)$$

Factor Remuneration and Institutional Disposable Income and Savings

The model distinguishes two types of factor income. These are wage income ($wagebill_i$) and nonwage income ($nonwage_i$). Nonwage income represents income from initial endowment, savings (investment), interest earnings, profit distribution, etc. which are part of income flow or output. For simplicity, we assume nonwage income to be the difference between value of output (PX_iX_i) and wage income such that[4]

$$wagebill_i = VA_i L_i^d PL(1 - tW_i) \quad \text{.....} \quad (15)$$

$$nonwage_i = (PX_i X_i - wagebill_i)(1 - tNW_i) \quad \text{.....} \quad (16)$$

$$YG = \sum_i L_i^d VA_i PL_i (tL_i + tW_i) + \sum_i tK_i K_i^d VA_i PK_i + \sum_i tNW_i nonwage_i + \sum_i tm_i M_i^d pm_i + \sum_i te_i E_i pe_i + tD_i pd_i D_i^d + \sum_i \sum_j a_{ji} X_j PX_j VAT_j \quad \text{.....} \quad (17)$$

$$YD = \sum_i wagebill_i + \sum_i nonwage_i \quad \text{.....} \quad (18)$$

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[4] *Nonwage bill as defined above implies what a particular sector is expected to distribute to the household.*

where tW_i and tNW_i are wage and nonwage taxes, respectively, E_i represents export supply, tm_i and te_i are import and export taxes, respectively, pe_i is the domestic price of exports, tD_i is indirect (sales) tax, pd_i is producer price of domestic goods, PX_i is price of aggregate output, VAT_j is value-added tax. The equation for *YG* states that government income is the sum of taxes on labour employment, wages, capital employment, nonwage income, tariffs, sales and value-added. *Govsav* and *privsav* are government and private savings, respectively, and are defined as;

$$Govsav = YG - \sum_i G_i \quad \text{.....} \quad (19)$$

$$\Pr ivsav = YD - \sum_i C_i \quad \text{.....} \quad (20)$$

Prices

Price of composite goods (PQ_i)

$$PQ_i = \frac{pm_i M_i^d + P_i D_i^d}{Q_i^s} \quad \text{.....} \quad (21)$$

Q^s_i is the supply of composite goods. Price of aggregate output (PX_i) is given as

$$PX_i = \frac{pe_i E_i + pd_i D_i^s}{X_i} \quad \text{.....} \quad (22)$$

pd_i is the domestic supply price of good *i*. Import price (in domestic currency terms)

$$pm_i = \overline{pwm_i}(1+te_i).ER \quad \text{.....} \quad (23)$$

pwm_i is the international price of imports and *ER* is the exchange rate. Export price (in domestic currency terms) is given as:

$$pe_i = \overline{pwe_i}(1+te_i).ER \quad \text{.....} \quad (24)$$

pwe_i is the international price of exports. Market price of domestic goods (p_i) is given as:

$$p_i = pd_i(1+tD_i) \quad \text{.....} \quad (25)$$

Value-added price (p_i^v) is given as

$$p_i^v = p_i - \sum_j p_j a_{ji}(1+VAT_j) \quad \text{.....} \quad (26)$$

Foreign Trade

Exports supply and import demand equations are, respectively, given as:

$$E_i = D_i^s \left[\frac{pe_i(1-\gamma_i)}{pd_i.\gamma_i} \right]^{\frac{1}{R_i}} \quad \text{.....} \quad (27)$$

$$M_i^d = D_i^d \left[\frac{p_i \lambda_i}{pm_i(1-\lambda_i)} \right]^{-\frac{1}{1+\lambda_i}} \quad \text{.....} \quad (28)$$

Equilibrium Conditions

$$pe_i E_i - pm_i M_i - \overline{F} = 0 \quad \text{.....} \quad (29a)$$

$$Q_i^d - Q_i^s = 0; \quad \text{.....} \quad (29b)$$

$$D_i^d - D_i^s = 0; \quad \text{.....} \quad (29c)$$

$$\sum_i VAL_i^d = \overline{L^s} = L^d; \quad \text{.....} \quad (29d)$$

$$\sum_i VA_i K_i^d = \overline{K^s} \quad \text{.....} \quad (29e)$$

where *F* is foreign capital inflow, which can also be interpreted as trade balance. $\overline{K^s}$ and L^d are total capital stock and labour demand, respectively. $\overline{L^s}$ is labour supply. The over-bar implies fixation of stock

Some Identities

$$PX_i X \equiv pe_i E_i + pd_i D_i^s \quad \text{.....} \quad (30a)$$

$$PQ_i Q_i^s \equiv pm_i M_i^d + p_i D_i^d \quad \text{.....} \quad (30b)$$

Solution Strategy

The solution strategy involved three basic steps. In the first step, a highly aggregated Social Accounting Matrix (SAM) is constructed. For this purpose, different types of data are linked to form a consistent circular flow of the economy for a particular year (1999). The input-output matrix used to represent intermediate transactions was for 1999 as published by the Federal Office of Statistics (FOS). The second step involved the calibration of parameters for the model in the base year (1999). Price, income, and substitution elasticities were chosen so as to obtain a reasonable (static) base case solution. Other parameters, including production elasticities, intercept terms, and sectoral shares were derived in a way that ensures overall consistency of the data. The third and final step involved the solution, using the General Algebraic Modelling System (GAMSÔ) package. After the model had been solved, a sensitivity analysis was performed. The results suggest that the solution of the model would remain largely unaffected by changes in the key parameters giving us some degree of confidence that the results are not particularly sensitive to the parameter choice made.

Analyzed Scenarios

The tariff structures considered could be described as averages of what obtained in Nigeria between 1990 and 2003 (the period of extensive trade and exchange rate reforms). On the average, import duties have been generally lowered. Export duties are virtually non-existent for most goods. We assume that the production possibility frontier is constant ($X_i = \overline{X_i}$) throughout the analysis. This implies that we hold the level of aggregate factor employment constant; however, we allow for intra-industry re-allocation of existing employment level. Our neglect of net investment implies that our focus is on short run analysis. Further, our interest is on qualitative implication of tariff reform on factor allocation, hence, we consider tariff reduction with the assumption that tariff increase will have a reverse effect. To mimic the tariff structure practiced between 1990 and 2003, we use 30 percent, 50 percent, 70 percent reduction and total elimination of tariff. Base case solution value of all variables is indexed to 100. Simulation results are then reported relative to the base year index.

That is, figures in Tables 1 and 2 are percentage changes with respect to the base year values. Since we are using a simple static CGE model, the analysis is conducted using a once-and-for-all adjustment in tariff rates. We conducted the simulation under fixed and flexible exchange rate regimes.

V Results

The results from the simulations are presented in Tables 1 and 2. Table 1 is the result when the nominal exchange rate is fixed while Table 2 presents the results under a flexible nominal exchange rate regime. In general, the pattern of factor re-allocation is similar for both exchange rate regimes.

Under the fixed exchange rate regime, we observed that as import duty is reduced (except under the 30 percent and 50 percent simulation scenario), labour moves from the service sector to other sectors. Reducing import duty by 30 percent leads to 0.3 percent labour exit from the service industry and 0.5 percent exit from the agricultural sector. The manufacturing sector witnessed increased employment. However, beyond the 50 percent decrease in tariff, we observed that both the agricultural and manufacturing sectors gained in terms of employment. Consistently, the service sector witnessed employment loses. In terms of capital re-allocation, we observed that both the service and manufacturing sectors gained in terms of capital employed while there was exit of capital from the agricultural sector. The results show that about 2.4 percent of the labour employment in the service sector can be re-allocated to other sectors and about 0.9 percent of the capital employed in the agricultural sector can be re-allocated to other industries. Under the fixed exchange rate, we observed that percentage labour re-allocation is greater than percentage capital re-allocation as tariff is reduced.

The results for the flexible exchange rate are not qualitatively too different from the fixed exchange rate scenario. However, the percentage re-allocations are higher in values than under the fixed exchange rate. As under the fixed exchange rate regime, labour moves out of the service sector to other sectors with the manufacturing sector having the larger

labour gain. When tariff is eliminated, about 4.8 percent of labour employed in the service sector is re-allocated with manufacturing capturing about 3.4 percent and the remaining 1.4 percent goes into agriculture. In terms of capital re-allocation, the agricultural sector lost capital employed to the other two sectors. The manufacturing sector gains more than the service sector. As tariff is reduced, more capital leaves the agricultural sector for the other sectors. When tariff is finally eliminated, about 1.6 percent of the capital employed in the agricultural sector relocated to other sectors with the manufacturing sector attracting about 1.2 percent and service sector 0.4 percent.

Again, we observed that even under a flexible exchange rate regime, capital is relatively less mobile across industries than labour. However, more re-allocation of both factors occurred under flexible exchange rate than under the fixed exchange rate scenario.

Table 1: Sectoral Responses to Tariff Imposition (Fixed Exchange Rate)

Sectoral Resource Allocation; Import Tariff Reduction								
	Changes in Labour Employed				**Changes in Capital Employed**			
Sectors	30%	50%	70%	No Tariff	30%	50%	70%	No Tariff
Agric.	-0.5	-0.7	+0.8	+0.9	-0.6	-0.8	-0.8	-0.9
Mfg.	+0.8	+1.0	+1.5	+1.5	+0.4	+0.5	+0.5	+0.6
Serv.	-0.3	-0.3	-2.3	-2.4	+0.2	+0.3	+0.3	+0.3

Source: Simulation results. Figures are in percentage.

Table 2: Sectoral Responses to Tariff Imposition (Flexible Exchange Rate)

Sectoral Resource Allocation; Import Tariff Reduction								
	Changes in Labour Employed				**Changes in Capital Employed**			
Sectors	30%	50%	70%	No Tariff	30%	50%	70%	No Tariff
Agric.	+0.8	+1.1	+1.4	+1.4	-0.8	-1.2	-1.5	-1.6
Mfg.	+2.4	+3.0	+3.1	+3.4	+0.6	+0.9	+1.1	+1.2
Serv.	-3.2	-4.1	-4.5	-4.8	+0.2	+0.3	+0.4	+0.4

Source: Simulation results. Figures are in percentage.

VI. Concluding Remarks

Using a three-sector model, we examined the likely impact of import tax reduction and subsequent elimination on factor re-allocation under alternative exchange rate regimes in Nigeria. The study observed that the patterns of re-allocation are quite similar under alternative exchange rate regimes. As tariff is reduced progressively, the services industry loses labour employment to the manufacturing and agricultural sectors while the agricultural sector loses capital to both the manufacturing and service sector. Under the different exchange rate regimes, the manufacturing sector is a net employer of labour and capital. The study observed that the amount of re-allocation under flexible exchange rate is higher than under a fixed exchange rate regime. Furthermore, labour is observed to be relatively more mobile amongst sectors than capital. However, in general, percentage factor reallocation is considered small as no sector lost significant amount of factor employed to other sectors. These findings indirectly points to the limited role of trade policy in generating employment and enhancing efficiency in production. The results obtained in this study obviously depend on the assumptions and specifications of the model. Furthermore, investment and growth dynamics were completely neglected in the current study. These restrictions make interpreting the results with caution necessary.

REFERENCES

Abebefe, H. A. (1995). The Structure of Nigeria's External Trade: A Focus on Exports. Central Bank of Nigeria *Bulletin*, 19(4):

Adubi, A. A. and F, Okunmadewa. (1999) Price, Exchange Rate Volatility and Nigeria's Agricultural Trade Flows: A Dynamic Analysis. AERC *Research Paper* 87 African Economic Research Consortium. Nairobi March.

Agbaje, A. and A. Jerome (2004) "Institutional Framework and the Process of Trade Policy Making in African Countries: The Case of Nigeria", Final Report Submitted to the African Economic Research Consortium, January.

Ajayi, S. I. (1988). "Issues of Overvaluation and Exchange Rate Adjustment in Nigeria". Prepared for Economic Development Institute (EDI). The World Bank, Washington, D.C.

Anam, Mahmudul and Atipol Bhanich Supapol (1992) "Protection, Terms Of Technology Transfer And Foreign Investment: A Welfare Analysis" International Economic Journal, Winter, 6(4):75-83.

Aronson, S., L. Goldberg and J. Tracy (1999) "Exchange Rates and Employment Instability: Evidence from Matched CPS Data". American Economic Review Papers and Proceedings.

Aw, Bee Yan, Dukkyun Chung and Mark Roberts. (2000). "Productivity and Turnover in the Export Market: Micro-level Evidence from the Republic of Korea and Taiwan (China)," *World Bank Economic Review*, 14(1): 65-90.

Bentivogli, Chiara and Patrizio Pagano. (1999). "Trade, Job Destruction and Job Creation in European Manufacturing," *Open Economies Review,* 78(1): 165-184.

Bernard, Andrew and Bradford Jensen. (1999a). "Exceptional Exporter Performance: Cause, Effect or Both," *Journal of International Economics*, 47(1): 1-38.

Bernard, Andrew and Bradford Jensen. (1999b). "Exporting and Productivity," NBER Working Paper No. 7135.

Blejer, M. and A. Cheasty (1990) "Fiscal Implications of Trade Liberalization", in Tanzi, V. (ed.), *Fiscal Policy in Open Developing Economies*, (Washington D.C.: International Monetary Fund).

Burgess, Simon and Micheal Knetter. (1998). "An International Comparison of Employment Adjustment to Exchange Rate Fluctuations," *Review of International Economics*, 6(1): 151-163.

Campa, Jose and Linda Goldberg. (2001). "Employment versus Wage Adjustment and the U.S. Dollar," *Review of Economics and Statistics*, 83(3): 477-489.

Choi, Kwang (1997) "Tax Policy and Tax Reform in Korea" in Thirsk ed. *Tax Reform in Developing Countries*: 233-286.

Clerides, Sofronis, Saul Lach and James Tybout. (1998). "Is Learning by Exporting Important? Micro-dynamic Evidence from Colombia, Mexico, and Morocco," *Quarterly Journal of Economics*, 113(3): 903-960.

Cox, D. and R. Hariss, (1985) Trade Liberalisation and Industrial Organisation: Some Estimates for Canada, *Journal of Political Economy* 93(1): 115-145.

Davidson, Carl. and Steven J. Matusz, (2005). "Trade and Turnover: Theory and Evidence," *Review of International Economics*, 13(5):861-880, November.

Easterly, W. and S. Rebelo (1994), "Fiscal Policy and Economic Growth: An Empirical Investigation", *Discussion Paper No. 885 Centre for Economic Policy Research.*

Eaton, Jonathan and Samuel Kortum. (2002). "Technology, Geography and Trade," *Econometrica*, 70(5): 1741-1795.

Gourinchas, Pierre-Olivier. (1999). "Exchange Rates Do Matter: French Job Reallocation and Exchange Rate Turbulence, 1984-1992." *European Economic review*, 43(7): 1279-1316.

Hallward-Driermayer, Mary, Giovanni Iarossi and Kenneth Sokoloff. (2002). "Exports and Manufacturing Productivity in East Asia: A Comparative Analysis with Firm-Level Data," NBER Working Paper No. 8894.

Haltiwanger, John., A. Kugler, M. Kugler, A. Micco, C. Pagés (2004) "Effects of Tariffs and Real Exchange Rates on Job Reallocation: Evidence from Latin America" Discussion Papers in Economics and Econometrics (No. 0410), Economics Division, School of Social Sciences, University of Southampton.

Hamilton, B and J. Whalley, (1985a) "Geographically Discriminatory Trade Arrangements" *Review Of Economics and Statistics* 67(3): 446-455.

Hamilton, B., and J. Whalley (1985b) "Tax Treatment of Housing in a Dynamic Sequenced General Equilibrium Model." *Journal of Public Economics* 27, 157-75.

Khalizadeh-shirazi, J. and Shah, A. (1991), "Tax Policy Issues for the 1990s", *World Bank Economic Review*. 5(3): 459-71.

Klein, Micheal, Scott Schu and Robert Triest. (2003). "Job creation, job destruction, and the real exchange rate," *Journal of International Economics*, 59(2): 239-265.

Klein, Micheal, Scott Schu and Robert Triest. (2004). *Job Creation, Job Destruction and International Competition*. The Upjohn Institute, Washington D.C.

Levinsohn, James. (1999). "Employment Responses to International Liberalization in Chile," *Journal of International Economics*, 47(2): 321-356.

Mclure, C.E. Jr (1989), "Income Distribution and Tax Incidence Under VAT" in Gillis M, Shoup C.S. and Sicat G.P. (1989) *Value Added Taxation in Developing Countries* (World Bank, Washington D.C.)

Melitz, Marc. (2003). "The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity," *Econometrica*, 71(6): 1695-1726.

Mendez, J. A. and D. J. Rouslang (1989) "Does the Central American Common Market Benefit its Members? *Economic Inquiry* 27(3): 473-487.

Mendoza, E.G, Assaf Razin and L.L. Tesar (1994) "Effective Tax Rates in Macroeconomics: Cross-Country Estimates of Tax Rates on Factor Incomes and Consumption" *Journal of Monetary Economics*. 34(3): 297-323.

Muendlerz, Marc-Andreas (2003) "Trade and Growth: The Case of Brazil" www.econ.ucsd.edu/seminars/seven_ssrc/muendler_brazil.pdf (Accessed: 16/08/2006)

Odubogun, K. (1996) Institutional Reforms and the Management of Exchange Rate Policy in Nigeria. African Economic Research Consortium (AERC) *Research Report* 36. Nairobi, Kenya.

Olofin, S. (1992) "Trade Policies in Nigeria," in Salvatore, D. (Ed.) *National Trade Policies: Studies in Comparative Economic Policies*, Vol.2, North Holland.

Pavnick, Nina. (2002). "Trade Liberalization, Exit and Productivity Improvements: Evidence from Chilean Plants," *Review of Economic Studies*, 69(1): 245-276.

Polo, P. and F, Sancho, (1990) "An analysis of Spain's Integration in the EEC, Mimeo. (Universidad Autonoma de Barcelona, Bercelonal).

Revenga, Anna. (1997). "Employment and Wage Effects of Trade Liberalization: The case of Mexican Manufacturing," *Journal of Labor Economics*, 15(3): S20-S52.

Roberts, Mark and James Tybout. (1997). "The Decision to Export in Colombia: An Empirical Model of Entry with Sunk Costs," *American Economic Review*, 87(4): 545-571.

Sanusi, J. O. (2004) "Exchange Rate Mechanism: The Current Nigerian Experience" http://www.cenbank.org/OUT/SPEECHES/2004/Govadd-24Feb.pdf (accessed 23/04/05)

Skinner, J. (1987), "Taxation and Output Growth: Evidence from African Countries," Working Paper 2335, Cambridge, *NBER*.

Tanzi, Vito and H.H. Zee (1997) "Fiscal Policy and Long Run Growth" *IMF Staff Papers.* 44(2): 179-209.

Wacziarg, Romain & Wallack, Jessica Seddon, (2004). "Trade liberalization and intersectoral labor movements," *Journal of International Economics*, Elsevier, 64(2):411-439, December.

Wigle, R., (1988) "General Equilibrium Evaluation of Canada-U.S. Trade Liberalisation", *Canadian Journal of Economics* 21(3): 539-564.

The Industry Effects of Monetary Policy in the Euro Area by Gert Peersman and Frank Smets[++]– A Review

Ade O. Adenuga*

I. Introduction

The article sheds some light on the question of "whether monetary policy has stronger effects on economic activity in recessions than in expansions". It analyzed which industries are relatively more affected in downturns. The estimation was done by examining eleven manufacturing industries in seven countries of the euro area (Australia, Belgium, France, Germany, the Netherlands, Italy and Spain). The major contribution of the article was that it analyzed explicitly business cycle asymmetries in the industry effects of monetary policy. It explained the cross-industry heterogeneity on the basis of individual industry characteristics. The article is related to the works of (Garcia and Schaller, 1995; Kakes, 1998; Dolado and Maria-Dolores, 1999; and Peersman and Smets, 2001b). They, however, did not distinguish between various explanations for the asymmetry during recessions and booms. Following Dedola and Lippi (2000), two broad channels were identified and their distinguishing features were highlighted. The channels are through the interest rate and broad credit. Industry dummy for the durability of the goods produced by the sector, industry measures of investment intensity and the degree of openness were the determinants for the interest rate channel.

The article used quarterly industrial data for the period 1980 – 1998 from the Organization and Economic Cooperation and Development (OECD) countries database. The industries in each of the countries considered are: food, beverages and tobacco; textile, wearing apparel and leather industries; wood and wood products, including furniture; paper and paper products, printing, publishing; chemicals, petroleum, coal, rubber and plastic products, except machinery and equipment; electrical, apparatus, appliances and transport equipment. Two systems of equations were estimated using SURE methods to account for the correlation in the residuals. Country

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and industry dummies were included to take into account country-specific effects. A similar set of equation was estimated for the difference between the policy effects in boom versus a recession and a weighted average of those effects. It allows for the assessment of the characteristics that have a significant impact on the total effects and determine which characteristics affect the symmetry in the policy effects across business cycle phases.

The article was structured as follows: section 1 discussed the methodology for estimating the industry effects of a euro-wide monetary policy change and the results. It further analyzed the extent the effects of policy vary across countries, sectors and business cycle phases. Section 2 explained the industry characteristics and the result of the regression analysis while a number of robustness checks were performed in Section 3. Section 4 concludes the article.

II Highlights of the Paper

The article focused on euro-wide area not only because it more closely resembles the current policy regime with a single euro-wide monetary policy but also because during most of the sample period domestic monetary policies in the seven countries considered were to a large extent coordinated through the participation in the Exchange Rate Mechanism (ERM) and other fixed exchange rate mechanisms.

In a recession, 60 out of 74 industries were negatively affected by a policy tightening, whereas in an expansion only 41 industries are negatively affected. While the average difference between the effect in a recession versus a boom is clearly negative at -0.48, there are industries in which the policy effect in a recession is not larger than in an expansion. The correlation between the policy effects in downturn and those in expansions is surprisingly low at 0.07.

A number of patterns were clear from the estimation of the effect of the industry and country effects on the policy multipliers in booms and recession. First, it appears that both in recession and in booms the average policy multiplier is significantly negative. The average effect over the business circle is about -0.47. In addition, the degree of asymmetry in booms versus recession is very significant. This confirms the result of Peersman and Smets (2001b) who find a significant degree of asymmetry using country data.

It appeared that the overall output effects of the common monetary policy shock did not seem to differ significantly from the average effect in the euro area. In contrast, the degree of asymmetry is significantly higher in Germany and lower in Italy and Belgium. It is worthy to note that this is the case even though industry composition was controlled for. The higher asymmetry of Germany is consistent with the findings of Peersman and Smets (2001b). After controlling for the industry composition, Austria and Netherlands are no longer negative outliers in the degree of asymmetry. The overall policy effects are small in the food, beverages and tobacco and non-metallic products industries. In contrast, the overall effects are significantly larger in the fabricated metal products, transport equipment and to a lesser extent, the chemicals sectors. It suggests that the durability of the output produced by the sector is an important determinant of its sensitivity to monetary policy changes. This was mainly because the demand for durable products, such as investment goods, is known to be much more affected by a rise in the interest rate through the usual cost-of-capital channel than the demand for non-durables such as food.

The correlation matrix of the various industry characteristics showed some unique features. First, there was a positive correlation between investment intensity and the share of large firms in the industry. Capital intensive industries also feature a smaller share of short-term debt in total debt. Second, there does not appear to be a strong correlation between the size measures and any of the balance sheet indicators. Finally, as expected, the maturity structure of debt and the working capital ratio are highly correlated. Also, the leverage ratio and the coverage ratio are highly correlated.

The article x-rayed some useful results. Industries producing durables and industries producing non-durables both react significantly to monetary policy shocks and have a significant degree of asymmetry. The durability dummy was highly significant in explaining the average impact of monetary policy. Sectors producing durable products are more sensitive to monetary policy changes. This finding supported the hypothesis that this determinant of the strength of the traditional interest rate channel should not have different effects in booms versus recessions.

First, there was no significant impact of other interest rate channel characteristics. Investment intensity and openness do not seem to be important in explaining cross-industry differences in the overall impact of monetary policy. There was a significant effect of the degree of openness in recessions. Sectors with a higher degree of openness appear to be less

affected than more closed sectors. This effect was, however, relatively small. Second, in contrast to some of the interest rate channel characteristics, there was no significant effect of the balance sheet indicators on the total policy effects. However, consistent with the financial accelerator hypothesis, there was evidence that weaker balance sheets imply a significantly stronger policy effect during recessions than during booms. The ratio of short-term debt over total debt and the coverage ratio seem to work more consistently with the financial acceleration hypothesis. In addition, industries with a higher leverage ratio (i.e. higher debt relative to total assets) appear to be less sensitive to monetary policy innovations during a boom. To some extent, this perverse effect showed that high leverage may be an indicator of good credit standing and high borrowing capacity. The effect of size on the degree of asymmetry was, however, significant in most cases. This was the result of a highly significant effect in recessions and an insignificant effect in booms. It confirmed the financial accelerator hypothesis. Industries with firms of a smaller size are more negatively affected by policy tightening in recessions versus booms. This result was significant for all size indicators.

A robustness analysis of the result showed that the results obtained were generally robust with respect to alternative methodologies and alternative monetary policy indicators. However, there are two slight differences. First, using the panel data techniques the leverage ratio has a significant effect in a boom. A higher leverage was associated with a smaller sensitivity to monetary policy shocks in a boom. Second, the share of small firms in total industry value-added is wrongly signed in a boom. This indicated that large firms are more sensitive to monetary policy shocks in a boom. This result was startling and the authors did not offer any explanation for it.

The modifications to the basic model showed very similar results from the basic model. All coefficients and standard errors are very comparable. The durability dummy was highly significant in explaining the total impact of monetary policy and the term structure of debt, the coverage ratio, financial leverage and the size indicators explained the degree of asymmetry between both business cycle phases. The difference with the basic result is that a significant impact of the degree of openness and the coverage effect of monetary policy was established. Also, there was an insignificant effect of financial leverage on the degree of asymmetry.

The strengths of the article lie in its contribution to the existing conclusion

that there is role for both traditional cost-of-capital channels and the broad credit channel in explaining the sectoral effects of monetary policy. The results that financial accelerator mechanisms work mainly during recessions were consistent with some of the literature reviewed in the article.

The analysis of the union-wide effect of monetary policy on output, particularly estimating for each individual industry of a country is novel. Also, the usage of filtered recession probabilities derived from Peersam and Smets (2001b) distinguished booms from recession.

A major drawback of the indicator used was that it included both euro area and non-euro area trade. Since the analysis was on the effect of an area-wide monetary policy innovation, the ideal indicator should have included only non-euro area trade. Such indicator could not be constructed. The implication of this drawback is that the openness indicator is on average much larger for the smaller countries than for the larger countries. It was nevertheless useful to include the indicator in the regression analysis, because the country effects could be picked up by the country dummies that were included in the regression.

III. Comments and Relevance of the Article

This article established an important role for the conventional interest rate channel in explaining cross-industries difference in total impact of monetary policy and an important role for balance sheet characteristics in explaining the effects in recessions and the degree of asymmetry. Overall, the article threw more light on the industry effects of monetary policy in the euro area. The impact of monetary policy on industries producing durable goods is almost three times as high as the impact on non-durable goods.

This article is relevant to member countries of the West African Monetary Zone (WAMZ), now that the countries of the West African sub-region are trying to form a monetary union, similar to the European Union. The zone comprises The Gambia, Ghana, Guinea, Nigeria and Sierra Leone. Its establishment was envisaged to quicken the process of restoration of macroeconomic stability, promote fiscal discipline through peer group pressure mechanism, sustain exchange rate and price stability and spur sustainable growth. The rationale for establishing WAMZ is to have the countries form a monetary union with a view to merging with the 41 year-old UEMOA as a strategy for establishing a single currency for ECOWAS.

The benefits that could arise from an integrated sub-region are obvious as the West African Monetary Union is predicated on the fact that economic integration can indeed enhance the prosperity and welfare of the citizens of member states. It facilitates the pooling of risk between otherwise vulnerable economies and enables the region to exploit complementarities and attract the levels of investment required for the development of modern industries, enjoy specialization, economies of scale and better access to technological spillover. Also, a monetary union encourages the mobilization and improved management of human and financial resources as well as hastens macroeconomic stability.

The exploration conducted by the authors could serve as a pointer to the authorities of WAMZ on the need to examine the industry effects of the harmonized monetary policy of the member countries on the Zone. This would give the authorities insights to the necessary policy adjustments in order to guard against negative effects on any member country. Doing this, may have to be preceded with the harmonization of monetary policies in the Zone, as members are operating various monetary policy techniques.

From the above explanations, macroeconomic stability would be required to shape the overall investment climate in the WAMZ countries. Also, the need to fasten the process of macroeconomic stability, promote fiscal discipline through peer review mechanism, sustain exchange rate and price stability, as well as sustainable growth, particularly in the sub-region is imperative. This is very crucial for creating an enabling environment for industry and ensuring the survival of entrepreneurs in member countries. Monetary policy designed to achieve macroeconomic stability requires that such key cost variables as the interest and exchange rates exert significant influence on aggregate demand, general price level and savings and investment. A judicious mix of these policies is critical for favourable and improved macroeconomic environment which would encourage the private sector to effectively take decisions that could lead to more efficient production. In order to achieve sustained growth in the industrial sector of member countries of the WAMZ, there would be need for the implementation of appropriate macroeconomic strategies. These include, low inflation, more stable exchange rate, maintenance of suitable fiscal policies, and strengthening the on-going structural reforms in the WAMZ countries. Finally, it would be expedient to plan against the frequent swings in capital expenditure arising from volatile export product revenue that have characterized all the WAMZ countries.

REFERENCES

Dedola, L. and Lippi, F. (2000). "The Monetary Transmission Mechanism: Evidence from the Industry Data of Five OECD countries", forthcoming *European Economic Review*.

Dolado, J. and Maria-Dolores, R. (1999). "An empirical Study of the Cyclical Effects of Monetary Policy in Spain (1977-1997)", *CEPR Discussion Paper* 2193.

Garcia, R. and Schaller, H. (1995). "Are the Effects of Monetary Policy Asymmetric?" *CIRANO Scientific Series*, 95-6.

Kakes, J. (1998). "Monetary Transmission and Business Cycle Asymmetry", Mimeo, University of Groningen, September.

Peersman, G. and Smets, F. (2001b). "Are the Effects of Monetary Policy in the Euro Area Greater in Recessions than in Booms?", in (L. Mahadeva and P. Sinclair, eds.), *Monetary Transmission in Diverse Economies*, pp. 28-48, Cambridge: Cambridge University Press.

Effect of Financial Globalization on Developing Countries: Some Empirical Evidence by Eswar S. Prasad et al[++] - A Review

Margaret Johnson-Hilili*

I. Introduction

The wave of globalization since the mid-1980s has been marked by a surge in capital flows among industrial countries and more outstandingly, between industrial and developing countries. Although capital inflows have been associated with high growth rates in some developing countries, a number of them have also experienced periodic declines in growth rates and significant financial crises that have had substantial macroeconomic and social costs. As a result, a strong debate has emerged amongst policy makers on the effect of financial integration on developing economies.

Developing economies' financial linkages with the global economy have risen significantly in recent years. However, a relatively small group of these countries has garnered a satisfactory share of private capital flows from industrial to developing countries, which surged in the 1990s. Despite the recent sharp reversals in such capital flows, structural factors, including demographic shifts in industrial countries are likely to provide an impetus to these flows over the long and medium term.

The main objective of the paper was to provide an assessment of empirical evidence on the effect of financial globalization on developing economies. It focused on three related questions: Does financial globalization promote economic growth in developing countries?; what is its impact on macroeconomic volatility in these countries?; and what are the factors that could help countries benefit from financial globalization?.

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II. Summary of the Paper

The paper centered around the idea that financial globalization was an aggregate concept that referred to increasing global linkages created through cross border financial flows. The authors used *dejure* restrictions on capital flows and actual capital flows across national borders in measuring the extent of a country's financial integration with the global economy. While these two measures of financial integration are related, they denote two distinct aspects. The capital account restrictions measure reflects the existence of *dejure* restrictions on capital flows, while the financial openness measure captures de facto financial integration in terms of realized capital flows. By either measure, the difference in financial openness between industrial and developing countries is quite stark. Many industrial countries have attained a high degree of financial integration, particularly in the 1990s. While this measure also increased for developing economies in that decade, the level remains far below that of industrial economies.

The authors, however, outlined the benefits of financial globalization on developing countries. The benefits were first, the substantial increase in the volume of cross border capital inflows from industrial to developing countries as a result of both "push" and "pull" factors. The push factors are business cycle conditions and macroeconomic policy changes in industrial countries; for example the increase of institutional investors in industrial countries and demographic changes, such as the relative aging of the population in industrial countries. The pull factors arise from changes in policies and the fact that developing economies have become more open. This has witnessed considerable liberalization of capital accounts and domestic stock markets as well as large scale privatization programs.

Second, financial globalization could in principle help to increase the growth rate in developing countries through a number of direct and indirect channels. The direct channels include: augmentation of domestic savings, reduction in the cost of capital through better global allocation of risk, transfer of technology and managerial know-how from advanced to developing countries, and development of domestic financial sectors. The

indirect channels are increased production specialization owing to better risk management and improvements in both macroeconomic policies and institutions induced by the competitive pressures or the "discipline effect" of globalization.

The third benefit of financial globalization is that it leads to increase in per capita income. For instance from 1970 to 1999 the average per capita income of more financially-open (developing) economies grew almost six times more than the corresponding increase for less financially-integrated economies. This pattern of higher growth also applied to consumption and investment growth.

The authors also presented the demerits of financial globalization on developing economies. The first is that it affects the management of consumption volatility. The evidence presented in the paper, which showed that although the volatility of output growth on the average declined in the 1990s, the volatility of consumption growth relative to that of income growth on the average increased for the emerging market economies. This period coincided with the period of rapid increase in financial globalization. In other words, the authors argued that procyclical access to international capital markets appeared to have had a perverse effect on the relative volatility of consumption for financially-integrated developing economies.

The paper also noted that financial globalization leads to currency crises among developing economies. This was attributed to: first, the tendency of international organizations to engage in momentum trading and herding which could be destabilizing for developing economies. Second, international investors together with domestic residents engaging in speculative activities could harm the currencies of developing countries, thus causing instability and; third, the inability of government to assign sufficient weight to the interest of future generations.

The latter parts of sections three, four and five of the paper were devoted to the presentation and explanation of a model designed to calculate the potential welfare gains arising from financial globalization. The paper noted that international financial integration could result in potentially large

welfare gains as it allows domestic residents, firms and countries to smooth fluctuations in their consumption/revenue by diversifying away country-specific risks. For example, during recessions, countries can borrow from international markets and mitigate the adverse impacts of declines in aggregate output on consumption and investment. During booms, they can lend to other countries and/or pay back the loans they borrowed during the recessions. However, they asserted that the empirical evidence did not fully establish a definitive proof that financial integration had enhanced growth in developing countries.

The paper concluded that financial globalization, in combination with good macroeconomic policies and good domestic governance is conducive for growth. Thus, countries with abundance of human capital and good governance tend to attract more foreign direct investment (FDI). Transparency of government operations was also seen as having a strong positive effect on investment inflows. Corruption was, however, identified as having a strong negative effect on FDI inflows.

III. Comments and Lessons for Nigeria

The authors' foresight in discussing this topical issue is most commendable. Although Nigeria is relatively integrated with the global economy, it is a late starter in the area of financial integration even though the economy has remained open over the years. The non-internationalization of the capital market has prevented the economy from exposure to financial crises. However, some of the issues raised in the paper are still valid for the long-run growth of the Nigerian economy.

At the current state, Nigeria's share of global trade has been very low due to her low export capacity. This is largely accounted for by undue dependence of Nigeria on crude oil exports, which has limited the scope for the diversification of the economy and, in turn, exposes the economy to terms of trade shocks. Also, the domestic financial market is still rudimentary and has not kept pace with developments in the global financial markets. This informed the introduction of the recapitalization exercise for the deposit money banks by the Central Bank of Nigeria in line with international best practice.

The various key measures highlighted such as consumption volatility, currency crises and corruption should be monitored by Nigeria if it is to derive maximum benefits from financial globalization. Admittedly, transparency of government operations exerts a positive effect on investment inflow in the country. This has become more evident since the setting up of some institutions such as the Economic and Financial Crimes Commission (EFCC), Independent Corrupt Practices Commission (ICPC) and Code of Conduct Bureau (CCB), amongst others, by the Federal Government. On the other hand, that a high degree of corruption affects the composition of a country's capital inflow is an important point to note.

Despite these effects, excessive growth in investment financed by foreign capital when domestic savings are low and the macro economy is unstable could result, especially in volatility of consumption and, hence, current account deficit.

The authors failed to mention that rapid financial globalization can alter the environment confronting policy makers in the conduct of monetary and financial policies. The continuous inflow of capital if not properly utilized could lead to increase in domestic interest rates, with attendant inflationary pressures. This could also lead to a sustained appreciation of the real exchange rate, which is counter productive for external sector competitiveness.

Also, another important issue which the paper failed to discuss is the adverse consequences on the domestic economy if a country does not develop the required absorptive capacity to utilize the influx of capital. However, this article is really informative as it will guide federal government policies towards ensuring that the country derives maximum benefit from financial globalization.

IV. Conclusion

As discussed in the paper, financial globalization has both positive and negative effects, which are opportunities and challenges. Although, it was difficult to distill new and innovative policy information from the review

of evidence, analysis in the paper showed that good institutions, quality of governance and macroeconomic frameworks are important in helping developing countries to derive the maximum benefits from financial globalization.

REFERENCES

Abed, George, and Sanjeev Gupta, 2002, Governance, Corruption, and Economic Performances (Washington: International Monetary Fund).

Aizenman, Joshua, 2002, "Volatility, Employment, and the Patterns of FDI in Emerging Markets," NBER Working Paper No. 9397 (December).

Aitken, Brian, and Ann Harrison, 1999, "Do Domestic Firms Benefit from Direct Foreign Investment?" American Economic Review, Vol. 89 (June), pp. 605–18.

Dollar, David, and Aart Kraay, 2001, "Growth is good for the Poor," World Bank Policy Research Working Paper No. 2587 (Washington: World Bank).

Dollar, David, and Aart Kraay, 2001, "Trade, Growth, and Poverty," Finance and Development, Vol. 38, No. 3 (September), pp. 16–19

SUBMISSION OF MANUSCRIPT TO CBN ECONOMIC AND FINANCIAL REVIEW

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   The article should not be more than 30 pages on A4 size paper and should be typed double-spaced with a margin of 1.5 inches on all sides. The manuscript **must** be accompanied with a diskette copy and a letter of submission written in English. Submission of a paper is assumed to imply that its contents represent original and unpublished work and is not under consideration elsewhere for publication. Normally, the review process is expected to take not more than three months. There is neither a submission charge nor page fee. A return address (postal/ email) should be indicated.

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3. *Comments on published article/notes* and *reviews* of up to 2,000 words will also be considered for publication. Notes deal with relevant topics not meeting full length articles. Reviews may be about articles published recently by this journal or elsewhere. A copy of the review/comments should be sent to the articles' author for clarification of any points or misunderstandings.

4. All submitted manuscripts are referred to an Editorial Board comprising of an in-house editorial committee and external referees. All comments by the referees will be sent to the author(s) together with a decision of the Editorial Board.

5. The purpose and scope of the article should be clearly stated in an abstract summarizing the article's essential points. The abstract should be typed on a separate page and should be between 80-100 words in length. In addition, the JEL classification code (s) as well as keywords should be clearly indicated on the abstract page.

6. The author's institutional affiliation and necessary background information on the article should appear at the foot of the first page. Footnote to the text should be listed at the end, followed by the list of references

7. References for quotations or statements should be in parentheses in the text, not as notes. E.g. Hess (1906:20) or Cagan (1958) or Majer (1975:35). Where more than three authors are involved, cite senior author and use *et al.*, E.G. Johnson *et al.* (1988).

8. Citations listed under the reference sections must begin on a new page. All entries must be typed double-spaced, listed alphabetically by last name of senior author and chronologically for two or more articles by the same author. The typed layout must conform to the following examples:

   Nnanna, O.J. (2003). "Promoting Savings and Investment Culture for National Development." *CBN Economic and Financial Review*. Vol 41. No. 3 pp. 1-10

   Oresotu, F.O. and Mordi, C.N.O. (1992). "The Demand for Money Function in Nigeria: An Empirical Investigation." *CBN Economic and Financial Review.* Vol.30.No.1 pp.32-69.

   Croxton.,F.E.; Cowden,F.E.; and Klein, S. (1968). *Applied General Statistics*. London: Sir Isaac Pitman and sons.

9. All tabular materials should be separated from the text in a series of tables numbered consecutively in Arabic numerals preferably in Microsoft Excel. Each table should be typed double-spaced and identified by a short descriptive at the top. Notes for table should be at the bottom of each table, before the source, and marked by lower case superscript letters. Appropriately placed tables should be indicated in the text.

10. Diagrams, graphs, charts, etc. must be separated from the text and clearly drawn in black ink on a white paper with all axes clearly positioned. They should be submitted in a form suitable for reproduction without redrawing, preferably in camera-ready artwork.

11. Where mathematical equations and formulae are used, they should be typed clearly. Notations, exponents, etc, which are simple to reproduce should be used. The equations should be numbered consecutively in Arabic numerals. The full mathematical workings necessary for justifying each step of the argument should accompany all the articles of a mathematical nature. This is meant to assist the reviewers and will not be published

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