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ECONOMIC DEVELOPMENT IN NIGERIA THROUGH THE AGRICULTURAL, MANUFACTURING AND MINING SECTORS: AN ECONOMETRIC APPROACH

by

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DECLARATION

I, Dennis Chiekweiro Uzoigwe declare that the dissertation / thesis with the above title which I hereby submit for the degree of PhD in the Department of Economics at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at another University.

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DEDICATION

This study is dedicated to my God, the Almighty Jesus Christ, for sparing my life from a ghastly auto accident that claimed the lives of more than two-thirds of the 52 passengers of a Lagos-bound bus on which I was travelling on my way to board the aeroplane to the University of Pretoria after the Christmas holidays in 2004.

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ABSTRACT

In the 1960s, Nigeria was on a par, in terms of aspirations to attain a very high level of economic growth and development, with its fellow-oil producing and exporting countries such as Malaysia and Indonesia, but has since failed to keep pace with them. Nigeria's agricultural, manufacturing and mining and quarrying sectors have played a continuous and significant role in the development of the country's economy. The approval of the millennium development goals (MGDs) by the United Nations General Assembly therefore raises three pivotal questions for Nigeria. 1) Why is Nigeria still an underdeveloped and low-income country? 2) What should the country do to make rapid economic and social progress? and 3) How can it attain a high level of economic development and growth?.

This is the background of this study, which is an empirical investigation into the factors affecting Nigeria's bid to achieve sustainable economic growth and development with particular reference to such sectors as agriculture, manufacturing and mining and quarrying (solid minerals) over the period of 1970-2005. This involves the analysis of the relevance of the health care and education sectors and examination of impediments to past economic development, a development model applicable to Nigeria, the efforts made and the challenges facing the country in achieving the MDGs, and the role of foreign development partners in complementing Nigeria's development efforts.

The methodology adopted for this study is sectoral-econometric modelling, using the Engle-Yoo (1991) model, which contributes to bridging the gap seen in empirical studies in the application of a multivariate dynamic econometric cointegration model on the effect of domestic and foreign financial resources investment for the development of the growth sectors in the Nigerian economy. The model captures the essential linkages between the growth sectors and the country's efforts to achieve a high level of economic development.

The results from the simulations are broadly consistent with findings described in theoretical and empirical literature. There is a strong positive relationship between the gross output of the agricultural, manufacturing and mining and quarrying sectors and labour input and public capital expenditure for the growth sectors. Also there is a strong positive relationship between the agricultural credit guarantee scheme, fertiliser and the gross output of agriculture. Furthermore, the findings show a positive impact of the structural adjustment programme with the agricultural and manufacturing production. Dynamic simulation of results was undertaken to assess the path of the 10 percent dynamic adjustment (shocks) on the relevant exogenous variables and the response properties show remarkable and positive significant impact due to the shocks. The estimated actual and forecast values of the equations in the model show notable increase in the amount and growth of the gross domestic product of the real sectors in Naira billion from 2005 to 2008.

The study calls to question rigid government control over the mining and quarrying sector. The importance of mining and quarrying in accelerating the pace of economic growth in Nigeria should rather motivate the government to deregulate and reform the sector. This will enable the government to attract investors into the sector, while effectively planning to encourage the proliferation of small-scale artisan, medium-scale and large-scale miners. The deregulation of the mining and quarrying sector will boost production, growth and development through employment creation, increased income of household miners and upliftment of the social and economic status of the vast majority of Nigerians.

Some of the reasons identified for Nigeria's poor economic performance include: the serious effect of "Dutch disease", reflected in the country's inability to manage and diversify its oil wealth to transform and achieve dynamic industrial (manufacturing), agricultural, mining,

health and educational and other growth sectors. Nigeria also suffers the effects of a troubled political history, during which military rule persisted for extended periods.

This study shows the importance of improving the knowledge base for policymaking, where intersectoral linkages between economic and social factors can be identified, and direct and indirect macroeconomic policy effects discerned. This distinguishes the study from earlier work in Nigeria on development policy. Achieving a high level of economic development through transforming the country's real sectors will not only reduce poverty by providing food security, increased agricultural and industrial exports, increased per capita income and consumption, but will also bring about improved literacy and a healthy workforce and foster peace and security in Nigeria. In addition, success in transforming the real sectors will strengthen and broaden the productive base of the country, which currently relies heavily on the petroleum sector as the major earner of foreign exchange. In order to achieve a high level of economic development and growth, attention should be concentrated on channelling global financial resources to the above-mentioned sectors because of their strong linkages with and powerful value-added effect to the rest of the economy.

Under the new democratic dispensation, there ought to be large investment into the growth and support sectors from domestic and external sources if the country is to attain the international growth target of achieving a high and sustainable level of economic development. Therefore, with a strong will to become a patriotic civil society, stable and prosperous, and enough wisdom to elect leaders with good will and fairly good knowledge of the country's economy, great prospects lie before the Nigerian economy.

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LIST OF ABBREVIATIONS AND ACRONYMS

ADB:	African Development Bank
ADF:	Augmented Dickey-Fuller
CBN:	Central Bank of Nigeria
DAC:	Development Assistant Committee
ECM:	Error correction model
et al.:	et alii, means others
FDI:	Foreign Direct Investment
FOS:	Federal Office of Statistics
GDP:	Gross Domestic Product
HICPs:	Highly indebted poor countries
HIV/AIDS:	Human Immune Deficiency Virus/Acquired-Immune Deficiency Syndrome
IMF:	International Monetary Fund
LDCs:	Less Developed Countries
LN:	Logarithm
MAP:	Multi-country aid programme
MDGs:	Millennium Development Goals
MMSD:	Ministry of Mines and Steel Development
₦ :	Symbol for Nigeria's currency note
NDE:	National Directorate of Employment
NEEDS:	National Economic Empowerment and Development Strategy
NEPA:	National Electric Power Authority
NEPAD:	New Partnership for Africa's Development
NICs:	Newly industrialised Countries
NISER:	National Institute of Social and Economic Research
OECD:	Organisation for Economic Co-operation and Development
ODA:	Official Development Assistance
OLS:	Ordinary Least Squares
SAP:	Structural Adjustment Programme
SSA:	Sub-Saharan African
UK:	United Kingdom
UN:	United Nations
USA:	United States of America

CHAPTER ONE

1. 1 Introduction

At the dawn of this twenty-first century, strong efforts are being made round the world to accelerate the pace of economic growth and development. Concerns such as poverty eradication, empowerment of women, improvement in education, health and environmental protection for people living in the developing countries have received increased attention in world. The increasing attention paid to growth, development and social capital in the global arena is silently, but steadily overthrowing the economic and social conflicts that are prevalent in most developing countries.

There is a general belief that the economic development of any country depends on the quantity and quality of its resources (renewable and non-renewable), the state of technology and the efficient utilisation of resources in both the production and consumption processes. Resources-rich developing countries have the responsibility and the challenge to ensure that the benefits accruable from these resources filter down to the poor. However, it is evident that Africa is presently riddled with poverty, disease, ignorance, food insecurity and famine, with a large external debt and continued mismanagement of human, material and physical resources (Iwuagwu, 2000:22). It is not surprising, therefore, that 22 of the 36 poorest countries of the world are in Africa.

The United Nations Assembly in September 2000 approved an eight-point development target, tagged the Millennium Development Goals (MDGs). The broad objectives of the MDGs are to reduce poverty and extreme hunger by half; achieve universal primary education; promote gender equality and empower women; reduce child mortality; improve maternal health; combat HIV/AIDS, malaria and other diseases; ensure environmental sustainability and develop a global partnership for development by 2015 in all the poor countries of the world (United Nations, 2003:2). The declaration could be heralded as a timely gesture; at least for the first time, the international community sought in one voice and unity to address poverty as a global problem. The approval of the MDGs by the UN has further reinforced the need for developing countries to embrace economic development as paramount in their respective countries.

In the case of Nigeria, despite its large renewable and non-renewable resources, the country is still grappling with mounting economic problems of unemployment, hunger, poverty, external debt burden and decaying public infrastructures. The development challenges facing Nigeria are not of improving one sector or region at the expense of another or of introducing policy distortions and inefficiencies in resource allocations to the benefit of one group, which in the past led to increased poverty for others, but rather to adopt growth and social service-oriented policies that will enable all Nigeria's inhabitants to improve their welfare (Nwaobi, 2004:5). President Obasanjo (2006:11) admitted that the building blocks for the diversification of the Nigerian economy and the priority sources of growth for the economy are agriculture, manufacturing, solid minerals and construction. In other words, accelerating the pace of growth and development of the agricultural, manufacturing, mining (solid minerals), education, healthcare and other non-oil sectors will lead to faster integration and improvement in the welfare of the vast majority of the population of Nigeria.

Despite its temporary economic setbacks, Nigeria needs substantial investment in physical and human infrastructure and social capital (see Blignaut & Parsons, 2005). The most urgent needs as far as social capital is concerned are to develop the ability of different ethnic tribes to work together in "enlightened self-interest" for a common purpose in groups and organisations; to expand institutionalised social dialogue; and to rebuild and renew the economic value of high trust. Rebuilding Nigeria's socio-economic capital could entail a tripartite mechanism involving the government, labour and the civil society being part of the democratic structure and the development of a culture of seeking solutions together, and of building capacity, partnership, economic and political settlement. In other words, to renew the economic value of the country, concerted effort and emphasis is needed on technological dynamism in Nigeria's economic activities, and a long-term vision of its place in the global economy is imperative.

The goal of this study is to present development scenarios and policy implications of harnessing Nigeria's resource potentials through domestic and foreign financial resource mobilisation and investment to foster diversification and growth in Nigeria's agricultural, manufacturing, mining (solid minerals), educational and healthcare sectors, using a multivariate cointegration econometric dynamics Engle-Yoo (1991) third step model. In the following section, the background to Nigeria's economic problem is discussed. Then, the

statement of the problem, the objectives of the study and its justification, and the structure of the study are presented.

1. 2 Background to the problem

The agricultural and manufacturing sectors have been the bedrock of the Nigerian economy. Table 1.1 below shows that these sectors kick-started the development process in the country. For instance, the agricultural share of the GDP decreased from 62.9 per cent in 1960 to 39.0 per cent in 1990. It further decreased to 26.3 percent in 2000, showed some upward improvement from 34 percent in 2001, 36 in 2002 and declined slightly to 32 percent in 2005. However, the agricultural share to the GDP has not reached the 62.9 percent mark of 1960. The manufacturing share of GDP in 1960 was 4.8 per cent. It showed a significant contribution up to 1975, but declined to 5.4 per cent in 1980. It significantly improved its share of the GDP to 8.1 per cent in 1990, but its contribution decreased to 3.7 percent in 2000. It increased again from 7.77 percent in 2001, declined to 6.51 in 2002. The manufacturing share to the GDP has consistently decreased from 4.7 percent in 2003, 3.06 percent in 2004 and at the lowest mark of 2.79 in 2005.

Table 1.1 Changing sectoral structure of GDP in the Nigerian economy (1960 – 2005)

Sectors	1960	1970	1975	1980	1990	2000	2001	2002	2003	2004	2005
Agriculture	62.9	48.8	30.1	22.2	39	26.3	34	36	32	34	32
Manufacturing	4.8	7.2	5.6	5.4	8.1	3.7	7.77	6.51	4.7	3.06	2.79
Energy (Oil)	1.6	10.8	32	27.3	13.8	47.52	36.26	34.58	41.5	37.22	38.77
Mining & Quarrying	0.58	0.58	0.33	0.25	0.29	0.11	0.11	0.11	0.11	0.11	0.12
Transport & Communication	4.9	2.8	3.2	4.1	3.4	2.8	2.3	2.52	2.5	3.41	2.91
Building & Construction	4.8	5.1	5.5	8.5	1.9	2	1.14	1.21	1.2	1.46	1.47
Trade & Finance	12.4	12.8	17.2	25	21.4	12.6	11.85	12.78	11.86	13.91	14.1
Other	8.02	11.9	6.07	7.25	12.1	4.97	6.57	6.29	6.13	6.83	7.84
GDP	100	100	100	100	100	100	100	100	100	100	100

Sources: 1) The changing structure of the Nigerian economy and implications for development. CBN publication 2000 p114
2) Central Bank of Nigeria Annual Report and Statement of Accounts 31st December 2005 p176.

The energy sector, which was 1.6 percent of the GDP in 1960, started increasing, up to 13.8 percent in 1990. Energy share to the GDP has consistently increased from 47.52 in 2000, to 41.5 percent in 2003. It recorded 37.22 percent and 38.77 percent in 2004 and 2005 respectively.

The mining and quarrying sector which recorded 0.58 percent share to the GDP in 1960 had suddenly stagnated from 0.58 in 1970 to 0.12 percent in 2005. It is interesting to note that agriculture still retained first position with its share of GDP at 32 percent in 2005. According to Ajayi (1984:123), agriculture was the mainstay of the economy and leading sector in Nigeria in the 1950s and 1960s; during this period, a predominant share of the GDP originated in agriculture. Simpson (1987:194) further explains that the small independent farmers of independent Nigeria accounted for 70 per cent of its exports. It is significant that by almost all economic measures, the economic progress of Nigeria distinctly accelerated after 1957 and manufacturing started to grow, though this was essentially an urban phenomenon (Simpson, 1987).

However, the discovery of crude oil in large commercial quantities and the attendant oil boom between 1974 and 1980, which are attributable to the Israeli-Arab War, earned about $8.62 and $25.3 billion respectively for Nigeria. In spite of the global oil market glut, which started in 1981, Nigeria earned about $200 billion from oil exports between 1970 and 1990. This represented about 95 per cent of the total foreign exchange earned in the economy (Adeola, 1994:10).

The oil boom had three major important implications for the Nigerian economy. First, there is evidence of the serious effects of “Dutch disease”, usually diagnosed when a resource rich country earns significant increases in revenue from a sector’s raw material export, so that the resulting boom tends to “crowd out investment” in other sectors that might be more likely to support development (see Sachs & Wamer, 2001). The boom encouraged the government to embark on an ambitious industrialisation strategy, which emphasised import substitution. The investment programme and the policy of import-substitution (ISI) pursued during this period was predominantly in favour of light industries over the capital goods industry. As argued by Onah (1986), Nigeria’s import substitution strategy, based on a system of protection, led to a home-market bias in resource allocation in favour of consumer and raw material production. Table 1.2 shows that the importation of capital goods was generally high during this period as the overall share of total imports was highest at 58.0 per cent especially in 1983.

Similarly, the raw material imports exhibited an upward trend, especially in 1985 with 41.4 percent and 45.3 percent in 1995 within this period. It was a sign of the failure of the agricultural sector to feed the expanding domestic industries. According to Olorunshola (1996:54) and Ogunlana (1999:71), Nigeria consolidated its import substitution industrialisation strategy, which meant essentially replacing imported manufactures with locally produced products.

Table 1.2: Values of capital goods and raw materials imports, their growth rates and percentage share of total imports (1981-2005).

Year	Total Import	Capital Goods Imports (₦'Million)	As % of total imports	Raw materials imports (₦'Million)	as % of total imports
1981	12,599.10	4,018.00	31.1	3,152.40	24.4
1982	10,100.20	4,119.50	32.8	3,163.00	25.2
1983	8,903.70	3,168.00	58	2,479.30	25.5
1984	7,178.30	2,307.20	32.1	2.183.2	29.7
1985	5,536.90	2,768.60	34.9	3,284.60	41.4
1990	45,717.90	18,515.70	40.5	14,995.47	32.8
1995	755,127.70	162,352.50	21.5	342,072.85	45.3
2000	985,022.39	242,829.69	24.6	292,037.47	29.6
2001	1,371,409.10	338,079.16	24.7	407,283.13	29.7
2002	1,457,091.43	358,516.43	24.6	431,357.15	29.6
2003	1,507,422.81	350,057.39	23.2	479,439.07	31.8
2004	1,638,353.67	390,170.69	23.8	486,425.54	29.7
2005	2,496,423.69	579,669.58	23.2	768,399.22	30.8

Sources: 1) The changing structure of the Nigerian economy and implications for development. Central Bank of Nigeria publication 2000 p.201
2) Central Bank of Nigeria, Annual Report and Statement of Accounts. 31st December 2004 p169
3) Central Bank of Nigeria, Annual Report and Statement of Accounts. 31st December 2005 p197

As shown by Elkan (1995a:83), countries that have pursued import substitution policies by protecting industry have placed themselves at a disadvantage, in that their industries are too inefficient to compete in world markets. Furthermore, most investment programmes were left uncompleted and abandoned due to high unit costs, long gestation period and low foreign exchange earning potential, coupled with declines in the foreign exchange revenue to finance such projects identified in the First, Second, and other Development Plans.

Auty (1995:19), in his analysis of "the resource curse" thesis, explains that resource-rich countries may squander their resource advantage, because an over-optimistic estimate of their prospects leads to the pursuit of lax economic policies. A corollary is that resource-poor countries, mindful of their marginal position, may compensate for their disadvantage by adopting firmer and more far–sighted policies. According to Ilorah (1999:153), although the oil sector itself never did put pressure on the others directly, since its labour requirements were negligible, the policy response by the authorities towards the oil revenue generated adverse effects on the agricultural sector. The implications for Nigeria's dependence on one export product (crude oil) have been highlighted by Arnold (1997:126), Agba (2000:52), and Abolo (2001:35).

Besides, to industrialise, a country requires substantial capital investment, which is possible through either earnings of foreign exchange from exports, borrowing in the international financial markets, or allowing foreign businessmen to invest in the economy. Since the beginning of the oil glut, Nigeria's earnings from exports have been fluctuating downward with the consequent debt crisis pushing the economy into depression to the extent that the international community is reluctant to grant further credit facilities until the country shows a practical demonstration of improved ability to pay (Aremu,1997:1-2).

The second, the inflow of oil revenue motivated the military government to pursue the Indigenisation and Technology Transfer Decree of 1972 and 1977 (the Nigerian Enterprises Promotion Decree No.3). Prior to the Indigenisation Decree, the economy was mainly dominated by foreign investment, for instance, in 1967, 70 percent of the equity capital was foreign owned (Adejugbe, 1987:34). The Federal Military Government of Nigeria under General Gowon formulated the Indigenisation Policy, promulgated it into a Decree 1972 and later spelt it out as the Nigerian Enterprises Promotion Decree in 1973. According to the Decree:

> *" (1) All enterprises specified in Schedule 1 of this Decree are hereby subject to the provisions of this Decree, exclusively reserved for Nigerian citizens or associations, or accordingly: -*
>
> *a) as from the appointed day, no person, other than a Nigerian citizen or association, enterprise in Nigeria; and*

b) no alien enterprise on or after the date of commencement of this Decree shall be established in Nigeria.

(3) Nothing in this section shall, as from the date of commencement of this Decree and before the appointed day, preclude the sale or transfer by any person of any of the enterprises affected by this section. The Decree further spelt out offences and penalties. In the attempt to achieve economic independence, the policy of Indigenisation Decree was geared towards:

a) increasing indigenous participation in activities that are economic in character;

b) maximising and locally retaining profits;

c) raising the level of production of intermediate and capital goods;

d) increasing the contribution of industry to the national economy;

e) the promotion of indigenous manpower; and

f) increasing Nigerian participation in decision making in the management of the large commercial and industrial establishments.

As shown by Aremu (1997:24), the indigenisation policy was confrontational to Foreign Direct Investment and did not guarantee control, since foreign parent company still exercised effective control over their local affiliates in the country.

Lessons and experience with the introduction of the Decree show that the government did not do its homework well, given that the Nigerian economy was still characterised by inadequately skilled manpower, low levels of technology, private domestic capital and a lack of the requisite business skills and capacity for sound national economic management. The decree also portrayed Nigeria as a high-risk investment environment (see Whiteman, et al, 2001:8-9). Furthermore, early opportunities and benefits derivable from Foreign Direct Investment and transfer of technology accruable to Nigeria's economy were lost.

The development of the agriculture and livestock sub-sectors of any country should first aim to generate food and fibre for the teeming population, local industries, and then in some cases, for exports. Available statistics, however, show that generally, budgets at both the national and state levels in Nigeria have not been supportive of agriculture (Okuneye, 2002:18).

Past agricultural development programmes, such as the National Accelerated Food Production Programme (NAFPP), which was started in 1973, Operation Feed the Nation (OFN), started in 1976 and the Green Revolution Programme (GRP), launched in 1980, were all judged to be failures. According to Evbuomwan (1997:26), the Nigerian government launched various schemes, programmes and projects, primarily to increase agricultural output and improve the wel-being of the masses, but most of these ambitious programmes did not succeed due to poor planning and ineffective implementation. Special programmes such as the Community Bank, Directorate for Food, Road and Rural Infrastructure (DFRRI), the National Directorate for Employment (NDE), the Peoples Bank, the Better Life for Rural Women, Family Support Programmes, Family Economic Advancement Programme (FEAP), the Open Apprenticeship Scheme (OAS), to mention just a few, were established by different administrations, to address various manifestations of poverty such as unemployment, lack of access to credit, and the rural and gender dimensions of poverty. The response of various administrations to poverty problems appears to have been ad-hoc, uncoordinated and based more or less on a fire-brigade approach. While none of these programmes was completely without merit, the truth is that they did not have a significant, lasting and sustainable positive effect (National Planning Commission, 2004:100).

Nigeria experienced a troubled political history since its independence in 1960. It has had multiparty democracy, civil war and rule by the military, a return to civilian rule, then a return of the military again. In the 1990s, the country was ruled by an increasingly corrupt military, bankrupt of ideas and clinging onto power at all costs (Arnold, 1997:124). If authoritarianism (read as strong government) facilitated development as argued in the past, then Nigeria, whose track record of military dictatorial rule is arguably unsurpassed in Africa, would be by far the most developed country on the continent (Joseph, 2000:11). However, Chong (2004:190) argues that Taiwan and South Korea have both achieved a relatively equal distribution of income during autocratic regimes. This implies that Nigeria has been unable to develop, because it lacks the political will and commitment and suffers from too much corruption on the part of leadership in the country. Osaghae & Ikeotunye (2000:7) maintain that Nigeria has failed to develop in spite of its vast human and material resources, because these resources have been badly mismanaged and looted in the context of the rogue state run by military tyrants.

Table 1.3 Political regimes in Nigeria (1966-2006)

Period	Type of government	*Head of Federal Government*
1960-1966	civilian	T. Balewa
1966-1975	military	Y. Gowon
1975-1979	military	M. Muhammed and Obasanjo, A.M
1979-1983	civilian	S. Shagari
1983-1985	military	B. Buhari
1985-1993 Aug.	military	I. Babangida
1993-Aug-Nov.	interim	E. Shonekan
1993 Nov -1998	military	S. Abacha and A Abubukar
1999-2006	civilian	A. M. Obasanjo

Source: Ndiomu, C. 2000 pp.14-18.

The political regimes in Nigeria can be classified into military and civilian, as shown in Table 1.3. Of the 46 years of independence, 28 years have seen military regimes ruling. The civilian regime following independence was parliamentary, fashioned after the British model, while the 1979-1983 civilian regime was modelled after the American presidential system (Gana, 2000:37). A common trend was the military seizing power after accusing the preceding regime (military or civilian) of corruption, nepotism, ineptitude and the inability to offer solutions to the economic problems of the country. Each of the governments had been quick to promise and express the desire to improve the standard of living of the vast majority of the people by stimulating growth and development (Alalade, 2000:48).

The first civilian regime, which ruled from 1960-1966, adopted a market-oriented approach to economic management with strong planning and control. The second regime that held power between 1966-1975 focused its economic policy on demand management. The third regime, that ruled between 1975-1979, opted for a market system biased towards demand management, planning and control systems. The fourth regime, 1979-1983 decided to continue this market system with the introduction of heavy doses of austerity measures to control demand and the high escalating inflationary trend in the country. The fifth regime which ruled from 1983-1985 continued the market system of its predecessor, but introduced further control and stabilisation measures. The sixth regime, which ruled from 1985-1993, favoured a strict market system with a package of structural adjustment programmes. The seventh regime was an interim

government that lasted for less than a year, in 1993, and opted to continue with the deregulation policies of its predecessor. In the period between 1993-1998, the regime embraced a market-oriented management philosophy with a bias towards guided deregulation. The civilian regime that was voted into power in 1999, and is still in power, still continues this market system (Ndiomu, 2000:14-18). However, the current regime has also introduced the dimension of a private sector-led development strategy by speeding up the privatisation of non-performing public enterprises. It achieved some measure of recovery in terms of dealing with corruption and diversifying the economic base of Nigeria (OECD-ADB, 2006:421).

This analysis aims to show that, though different economic development policies and strategies have been pursued in the past by the various governments in Nigeria, none has been able to redirect the economy to the path of growth and recovery. However, the current civilian regime, which came to power in 1999, has demonstrated its commitment to leading the country toward achieving the international growth target by 2015.

Ake (1996:1) asserts that political conditions in Africa, and also in Nigeria are the single greatest impediment to development. African politics would appear to have been constituted to prevent the pursuit of development and the emergence of relevant and effective development paradigms and programmes. The commitment of leadership to development is problematic. The difficulty is not that they do not want development, but rather that these are really not attempting to bring it about. Their intentions and actions filter through complex layers of self-interest, and the policies that emerge effectively cease to be policies for development, as opposed to, for instance, strategies for survival, power or accumulation (Ake 1996:64). Initially, most African leaders hoped that someone else would take on the burden of development, while they concentrated on the struggle for power and accumulation, concludes Ake.

The greed to rule and the problem of corruption also constitute major impediments to the economic development of Nigeria. Transparency International, an independent organisation based in Germany, has consistently ranked Nigeria as one of the most corrupt in the world. Thomas (2000:144-145) identifies some of the many channels whereby corruption can weaken economic growth:

a) Misallocation of talent including under-utilisation of key segments of the society, such as women;
b) Lower levels of domestic and foreign investment;
c) Distorted enterprise development and growth of the unofficial economy;
d) Distorted public expenditure and investment and deteriorated physical infrastructure;
e) Lower public revenues and less provision of the rule of law as a public good; and
f) Capture of the state by the corporate elite of the "purchased" law and policies of the state, thereby undermining growth of output and investment of the enterprise sector.

Nigeria is believed to have benefited from its oil exports, which have earned the country large amounts of foreign exchange over the years, but has failed to effectively invest the oil wealth and hence boost the productive capacity of other sectors. This suggests why the country has failed in the past to achieve meaningful and purposeful development. Admittedly, Olusanya (2000:5) points out, since independence, successive Nigerian governments have battled against some inherent management problems militating against the development of the national economy, but with little success.

There is little doubt, therefore, that the dwindling fortune of the country's real sectors could be largely attributed to the effect of "Dutch disease" in the economy. The import substitution and industrialisation strategy adopted in the country is at variance with the industrial export-led development strategy pursued by other oil exporting developing countries like Malaysia and Indonesia, to mention but two, that have become Newly Industrialised Countries (NICs). The indigenisation policy and the subsequent promulgation of Enterprise Promotion Decree No.3 undertaken by the military government in 1973 were also at variance with policy inducements of Foreign Direct Investment (FDI) and accruable to technological transfers in the economy. The greed to be in power that the Nigerian military had felt for many years, the attendant corruption and rent-seeking class, created by the military regime in the country, have constituted a clog in the wheel of the country's development process.

According to Camdessus (2001:3), "the hope of all Nigerians, and the hope of the international community, is that the same determination that has brought Nigeria out of the dark shadow of

military dictatorship can now banish the failure of discredited economic policies from the people of Nigeria."

1. 3 Problem statement

The Nigerian economy was at the same level of development as countries such as Brazil, Indonesia, Malaysia and Pakistan in the 1950's - 60's, but today it is far behind all of them in terms of its overall level of economic development (Egbochuku, 2001:8). In essence, Nigeria has lagged behind other oil producing countries in terms of development, especially as most of these countries are now emerging as newly industrialised countries (NICs).

Obadan (2001:21) summarises the development challenges facing the country today as follows: how to revive the prostate economy, promote efficient and respectable economic growth, and increase productivity; and how to establish and sustain a viable and stable macroeconomic framework in the context of a stable democratic political system. In light of deteriorating social indicators, the government must urgently begin to reduce poverty, create employment opportunities and revive the infrastructural services in the country

In September 2000, at the dawn of this twenty-first century, while Nigeria was still searching for development break-through, at the 55th Millennium Summit, a global development mandate was given to all developing countries in partnership with the rich countries and development institutions and agencies, to: reduce poverty and extreme hunger; ensure universal primary education; eliminate gender disparity in primary and secondary school; reduce infant and child mortality by two thirds; reduce maternal mortality by three quarters; ensure universal access to productive health; and ensure sustainable development and reverse the loss of environmental resources by 2015 (United Nations, 2003). The MDGs declaration by the UN is a wake up call for Nigeria to redouble its economic development efforts towards achieving rapid and diversified development in the twenty-first century.

Reflecting on the performance of Nigeria's economy, Abdulahi (2002:67) concludes that it is still not satisfactory for the average Nigerian citizen. Problems, therefore, exist given that the different development planning, objectives and efforts put in place by the various past governments aimed at poverty reduction and general economic development, have not

achieved the desired objectives. The problem is either that the agricultural, manufacturing, mining and quarrying, education and health policy objectives are not well articulated or that certain actions by the governments and others within the economy have tended to encourage variables that hinder the implementation and realisation of economic development in the country.

Nevertheless, three pertinent pivotal questions that will drive the aim of achieving a rapid and sustainable development in Nigeria are: 1) Why is Nigeria still an underdeveloped and low-income country?, 2) What should the country do to make rapid economic progress? and 3) How can it attain a diversified and sustainable economic development and growth?. This study aims to respond to these questions. In the section that follows, the objectives of the study are presented.

1. 4 Objective of the study

The broad objective of this study is to explore policy scenarios that could enable Nigeria to achieve rapid economic development success, using a multi-sectoral cointegration econometric model. The dynamic cointegration Error Correction Mechanism of Engle-Yoo (1991) as the econometric model for Nigeria can provide a policy simulation laboratory in which exogenous changes in some aspects of the policy environment can be analysed for the economy-wide effect. Explicit focus is on agriculture, manufacturing, and the mining and quarrying (solid minerals). So far, development models for Nigeria have tended to focus primarily on the use of partial equilibrium and traditional econometric policy analyse. As a result, they often ignore the much-needed feedback from error correction (ECM) in the long-run dynamic adjustment of the macro economy. The application of Engle-Yoo (1991) third step dynamics for analysing economic development policy in Nigeria, therefore, represents a major improvement to the limited scope and to the methodological deficiencies of previous studies of this magnitude.

The model has the capability of establishing the linkage and interaction between the agricultural, manufacturing, mining of solid minerals and other variables from the rest of the economy. In essence, the multi-sectoral cointegration econometric framework and model can provide useful insights and guidance for exploring macroeconomic and development policy issues. This can

enable Nigeria to move towards achieving rapid economic development. This model thus represents a distinctive feature of this study and a significant departure from earlier studies in development policy in Nigeria. To achieve the high, sustained economic growth rates needed to reach the global development goals, Nigeria will need to quicken the pace of its economic development, attain and sustain broad balanced development in the various sectors of the economy.

Five sectors considered to be critical in this study include: agriculture, industrial (manufacturing), mining and quarrying (for non-renewable resources), education and health. Their choice can be explained as follows:

a) Agriculture is one of Africa's most important sectors. It has two major components; namely, food production and export commodities, and a more productive sector that would boost growth (World Bank, 2004a:211);
b) Progress in industrialisation is highly dependent upon agricultural development;
c) The mining and quarrying of solid minerals sector could play an important role in rural areas and in the national economy as a whole by serving as sources of employment and income. The earned income could improve the people's lives, enabling many to invest in good quality housing, businesses and livestock;
d) Formal education plays a role in the development of human capital. Moreover, Koven & Lyons (2003:50) has linked education to economic progress for individuals and for the society; and
e) Maintaining a healthy population is an important goal in its own right. This is crucial to the development of a productive workforce, which in turn is essential for economic development (World Bank, 2000:134).

Other objectives of the study are to:

a) Asses the challenges, progress and efforts of the stakeholders towards achieving the global development goals in Nigeria;
b) Identify and evaluate the role of domestic financial institutions in the mobilisation of financial resources for productive investment to complement foreign investment in the development process in Nigeria; and

c) Suggest a pragmatic and practicable development model as a policy guide towards the implementation and achievement of rapid development and thus attain the MDGs in Nigeria.

1.5 Contribution and justification for the study

This study aims to contribute to the understanding of macroeconomic development policy stimulations, using the multivariate Engle-Yoo (1991) cointegration econometrics dynamic third steps model. This focuses on the linkages between variables reflected in the agriculture, manufacturing, mining and quarrying, and other relevant sectors and socio-economic factors. Nigeria needs to improve on its knowledge base policymaking, particularly the inter-sectoral linkages between economic and social factors. The direct and indirect macroeconomic policy effects and feedback from the model, distinguishes it from earlier works in development policy in Nigeria. The Engle-Yoo (1991) multivariate cointegration econometrics dynamic model for Nigeria is developed to conduct quantitative policy analysis. The model structure explores policy framework scenario options that may be able to provide feasible solutions for the problems facing Nigeria in achieving its development goals.

This study is also justified for a number of other reasons, including:

a) The achievement of rapid economic development through the transformation of the country's real sectors will not only reduce poverty by providing food security. By increasing agricultural and industrial production, increasing exports, and per capita income and consumption, it can also help to build a literate and healthy workforce and foster peace and security in Nigeria;
b) The achievement of a diversified economic development and the MDGs in Nigeria through the transformation of the non-oil sectors will strengthen and broaden the productive base of the country, so that it no longer relies heavily on the petroleum sector as the major earner of foreign exchange to the country;
c) Since this is the first time the delayed development in Africa and indeed in Nigeria is being addressed globally, attention should be concentrated in channelling global financial resources to the agricultural, industrial, mining and quarrying, educational and healthcare sectors, because of their strong linkage to and high value-added effect to the rest of the economy.

d) The achievement of rapid and diversified development in Nigeria through the country's agricultural, industrial, mining, educational and healthcare sectors can help raise the economy to being a global player; and
e) An empirical analysis of the macro economy-wide framework using the Engle-Yoo dynamic cointegration eeconometric model for Nigeria is deemed suitable and relevant for providing feedback and policy options for attaining rapid economic development success in the country.

1.6 Outline of the study

This study is structured into seven chapters. The remaining part of the thesis is arranged as follows: Chapter Two contains the literature review. It focuses on contemporary and relevant issues in the economic development of developing countries. Included here is an overview of the state and trends of development in Nigeria. Its development prospects, a review of a general development model from the newly developed countries of South East Asia. Also discussed is a development model that can be applied to Nigeria.

Chapter Three discusses the policy framework of the MDGs, efforts and challenges, and the role of external partners. It focuses on the Official Development Assistance (ODA), international trade, Foreign Direct Investment (FDI) and debt relief. Chapter Four focuses on the relevance and the analysis of the growth sectors in Nigeria, emphasising agriculture, manufacturing, mining and quarrying, education and health.

Chapter Five deals with the theoretical and analytical framework of the study; it sets out the structure of the model and a general model of agriculture. Models 1 to 4 of agriculture, and the basic hypotheses and expectations for each variable in the agricultural model. This chapter also contains a model for manufacturing and basic hypotheses and expectations for each variable included in the model. The structure of the model for mining and quarrying is also discussed, with basic assumptions and expectations for its variables.

Chapter Six contains the empirical analysis and presents the estimated econometric models. The analysis of the results of the cointegrated estimated models for agriculture, manufacturing and mining and quarrying, and their implications are analysed. The dynamic simulation results,

the actual and forecasted models, and the policy scenarios based on the empirical results are also discussed in this chapter.

Chapter Seven reviews the major findings, and makes concluding remarks. Policy recommendations and implications from the study are discussed, as well as the robustness or limitations of the model and suggested further areas of study.

CHAPTER TWO

LITERATURE REVIEW OF ECONOMIC DEVELOPMENT: CONTEMPORAY ISSUES AND THEIR RELEVANCE TO NIGERIA'S ECONOMY.

2.1 Introduction

The origin of science of economics can arguably be located in the need to study the assessment and causal influences on the opportunities that people have for living well (Sen, 1999:24). Indeed, the ultimate objective of "economic development" and state action in all countries, more especially in developing countries, is the enhancement of human capabilities including the basic capacities of avoiding ignorance, under-nutrition, disease and early mortality, leading a fuller, longer life, and being able to participate in decision-making in the community (Sen, 1999; Dreze & Sen, 1989).

The purposes of this chapter are six-fold:

a) To present an overview of the concept of economic development, and its relevance, in line with the emerging popular development with a human face;
b) To analyse the state of the Nigerian economy so as to identify salient developmental features, trends and challenges that have arisen since the country became independent in 1960. To showcase and give insight into the current level of the country's economic development;
c) To identify and analyse impediments to development in Nigeria, to further help to explain why Nigeria is at this low level of economic development;
d) To review and explore the potential of Nigeria's growth sectors to help answer the question of where the country's economy should be given its resources endowments;
e) To evaluate the development prospects of Nigeria, to help set an economic development agenda and answer the question of what should be done to get the country on the path of recovery and sustainable development; and
f) To review and present the salient economic facts relevant to various development models of the newly industrialising Asian countries, so as to draw lessons for Nigeria and other developing countries in Africa.

2.2 An overview of economic development

Economic development encompasses progress in providing livelihood on a sustainable basis, access to education and basic healthcare for the majority of the population (Belshaw & Livingstone, 2002:3). The meaning of the term "development" becomes clearer with the understanding of the term "economic growth". By economic growth, economists generally mean the increase over time in a country's real output per capita. Though other measures can be used, output is most conveniently measured by the gross national product (GNP). This implies that economic growth is measured by the increase in a country's per capita GNP. Economic growth is thus sustained expansion of production possibilities measured as an increase in the real GDP over a given period. Rapid economic growth maintained over a number of years can transform a poor nation into a rich one, as has been the experiences of Hong Kong, South Korea, Taiwan and other Asian economies (Bade & Parkin, 2002:222). According to Malizia and Feser (2000:20), growth and development is complementary, because one makes the other possible. They are also alternating processes that occur sequentially. Growth is an increase in output, development is a structural change, for example technological or legal. Growth expands the economy, while development must lead to more equal distribution of income and wealth. Overall, growth and development lead to a greater range of economic choices.

2.2.1 The concept and relevance of economic development

A common alternative for measuring economic development has been using the rate of growth of income per capita or per capita GNP, which expresses the ability of a country to expand its output at a rate faster than the growth rate of its population (monetary growth of GNP per capita minus the rate of inflation). The GNP per capita is used to measure the overall economic well-being of the population, expressing the amount of real goods and services that is available to the average citizen for consumption and investment (Todaro & Smith, 2003:15). Recently, however, economic development is defined in terms of the quality of life of the majority of the population. According to Todaro and Smith (2003:16), the experience of the 1950s and 1960s when many developing nations failed to realised their economic growth targets and the quality of life of the majority of their people remained for the most part unchanged, signalled that something was very wrong with this narrow definition of development.

Notwithstanding the debate for and against the efficacy of using economic growth, GNP per-capita as an index for economic development, there is considerable evidence in developmental literature. It has shown that this index of economic growth is characterised by many deficiencies when related to welfare (see Allen & Thomas, 2000:23; Mohr & Fourie, 2004:576). Most specifically, the economic growth index fails to reflect the distribution of income or wealth between the rich and the poor, and can also not show what sections of the population are favoured by the growth; or the level of welfare derived from the consumption of goods and services involved. Using GNP per capita as an index, thus requires a range of problems to be resolved. Such as capturing unrecorded economic transactions from the informal sector, externalities (pollution, congestion and noise). In essence, it says nothing about the values or costs of these activities. Comparing the GNP per capita of different countries is also problematic considering the varying exchange rates of national currencies.

It could be in light of all these problems that Thomas (2000:23) says that over the long term, development could be seen in terms of increased living standards, improved health and well-being for all, and the achievement of whatever is regarded as a general good for the society as a whole. Hall (1983:6) says that belief in the trickle-down effect is one reason why the GNP per capita measure has become deeply entrenched. However, the fact that the benefits of growth have not always trickled down from all sectors as expected, is an argument neither for nor against growth as such, since a faster growth might after all be what is needed.

However, Belshaw and Livingstone (2002:10) argue that while GNP per capita figures are the traditional measurement of economic growth and development, a better indicator of well-being is now available, namely the Human Development Index (HDI). The HDI defines well-being in terms of combinations of a measure of income, a health indicator and an access to knowledge indicator. The process of development should at least create a conducive environment for people, individually and collectively, to develop their full potential and to have a reasonable chance of leading a productive and creative life according to their needs and interests (UNDP, 1992:1).

2.2.2 Economic development: the perspective of human development index (HDI)

According to the United Nations Development Programme (UNDP, 1992:1), development should focus on human development. The UNDP argument stresses that economic growth must

be managed and wealth distributed for the benefit of the majority of the country's people. Central to this process of human development is the enlargement of people's choices, most crucially in the areas of being able to live long and enjoy healthy lives to have access to education and to the varied resources needed for a decent standard of living.

Progress in human development can also be measured by the degree of political freedom, guaranteed human rights and personal self-respect the citizens of the country enjoy. On the basis of this reasoning, the UNDP (1992:1) evolved the HDI, including component variables such as the standard of living (purchasing power based on real GDP, knowledge (adult literacy and more years of schooling) and longevity (life expectancy). Essentially, development is the increasing ability of a given society to productively manipulate her environment. This entails a rising level of social and scientific consciousness, and advancement in science and technology for the society in question (Adenuga, 2003:46). Kayode and Odusola (2001:17) see development as a process that results in improved economic status for a country. They say it is often measured by increased real per capita income and if possible should be sustained over a long period of time. Moreover, they note that development is a process involving elements of modernisation such as enhanced productivity, social and economic equalisation; improved knowledge, attitudes and institutions; and rationally coordinated policy measures that are capable of reviewing all obstacles to social economic transformation.

Intuitively, economic development goes far beyond just real per capita GNP or national income. Its sustenance over time through the continuous increase in per capita and productivity. It is about who benefits from the fruits of economic growth, the vast majority of the populace or just a fraction of it (the high-middle-income population). Economic development could include changes in social, political and institutional structures in the economy, reflected in the character of the people and the attainment of better life for the majority of the population in a society. Economic development could also involve development in different sectors of the economy. It involves efficient economic management, good governance, sustainable development and poverty reduction; all of these are goals to which development stakeholders have to contribute (Sako, 2002:75). Ruttan (1997:225) explains that the basic needs approach represents a radical departure from conventional development strategy.

In the basic human needs approach, poverty is defined not in terms of income, but rather as a lack of good nutrition, good health, educational opportunities and similar dimensions of welfare (see Allen & Thomas, 2000:11; Lewis, 2003:252; Nielson, 2002:101; Wade, 2003:37-38). According to this view, usually referred to as the basic (human) need approach, economic development is defined in terms of progress towards reducing the incidence of poverty, unemployment and income inequalities. Beneria (2003:21) advocates a vision of development based on an intuitive idea of life that is worthy of the dignity of human beings for each and every person, a view that is in tune with the basic objectives of feminist economics. Meeting the basic needs of the vast majority of the population of a country is at the centre of this view. Ruttan (1997) further argues that growth objectives are replaced in this approach by consumption targets translated into specific programme goals, namely a life expectancy of 65 years, a literacy rate of at least 75 percent, an infant morality rate of 50 or less per thousand births and a birth rate of 25 or less per thousand of the population. Sen (1999) asserts that "development has to be more concerned with enhancing the lives we lead and the freedom we enjoy," rather than economic growth being treated as an end in itself. In the same vein, Blignaut (2004:41) explains that ignoring the impact of social capital or environmental preservation in the conventional growth models may be a problem when predicting the possibility of sustained growth. This suggests that the linkage and interactions between the economy and the environment are constrained, since growth does not automatically lead to increased welfare.

2.2.3 Economic development: lessons for the developing countries

Apparently, a crucial test for economic development and growth remains ensuring that the majority of the population of a developing country are manifestly better off and that their living conditions improved. Also, a distinct advantage of the human needs approach and model is that poverty reduction strategies are made top priority in the development agenda. It is persistently clear in recent developmental literature that the phenomenon of poverty eradication may not be easily analysed with orthodox economic models that originated from and are applied in the rich industrialised countries. Rajan (2004:56-57) argues why an orthodox economic model may not be the best guide for policy in developing countries. He pinpoints the absence of institutions, such as efficient and impartial judiciaries, legal systems to protect intellectual property, tax

administration and credible central banks; as one of the reasons why so many countries do not grow fast enough to vanquish poverty. In many situations, complete market models are too far distanced from reality to be useful and the model is in most cases an intellectual straitjacket when applied universally, because it ignores cost of contracting and enforcement.

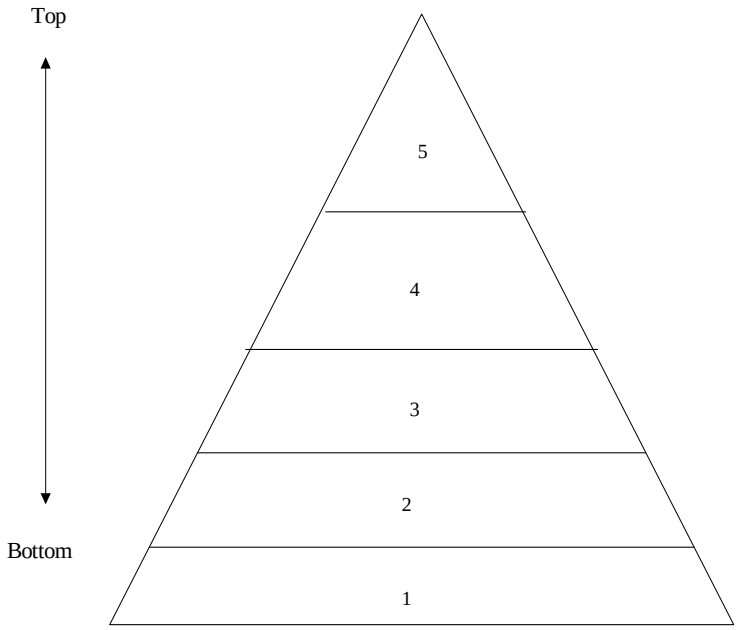
It is worth noting that the failure of the now orthodox development models to provide relevant solutions to these fundamental questions betrayed their usefulness in the context of development economies. More so, the United Nations (UNDP, 1992) HDI, which defines development in terms of human development, has further exposed the deficiencies of the orthodox development models. Overall, the developing countries are becoming conscious that orthodox economic models and hypotheses such as the export-led model, the vicious circle of poverty hypothesis, unbalanced growth model, the Harrod Domar, Rostow's stages, import substitution industrialisation, the big push strategy and surplus labour models have all failed to impact meaningfully on the economic development of developing countries.

The weakness of these strategies stems from the fact that they are developed and nurtured in an environment that is alien to developing countries. According to Adams (2001:334), top-down, technocratic blueprint approaches to development have come under increasing scrutiny as they fail to deliver the economic growth and social benefits that had been promised. It has been widely argued that development goals can only be achieved by "bottom-up planning", decentralisation and participation and community development (Agrawal & Gibson, 1999:629). This development from below demands a reversal of conventional development thinking, working from the bottom-up and periphery inwards; it suggests that, for success, development must be not only innovative and researched-based, but also locally conceived and initiated, flexible, participatory and based on understanding of local economies and politics (Adams, 2001:335).

In line with the human welfare approach, it has been argued in the literature that the behaviour of people at a particular moment is usually determined by their strongest needs. This will be significant to policy makers who have to understand the needs that are commonly important to people. A framework that helps to explain the strength of certain needs has developed by

Maslow. According to Maslow (1995:19), human needs arrange themselves into a hierarchy, as illustrated in a pyramid form, shown in Figure 1.

Figure 1.1 Conceptual Representation of Maslow's Hierarchy of Needs



Source: Maslow, A. H. 1943. A theory of human motivation, Psychological Review, 50, 370-396

5. The need for self-actualisation or fulfilment
4. Esteem needs: recognition, prestige
3. Social needs: acceptance, feeling of belonging.
2. Needs for safety: security, comfort, economic well-being
1. Physiological needs: food, clothing, shelter, clean water, air and health and education

The physiological needs are placed at the foundation of the hierarchy, because they most urgently need to be satisfied. These are the basic human needs to sustain life itself, needs for food, clothing, shelter, clean water, air, primary health care and education. Until these basic

needs are satisfied to a degree sufficient for the operation of the body, the majority of the person's activity will probably be at this level, and the other needs will provide little motivation.

Once the physiological needs have been satisfied, safety needs become predominant, as highlighted in figure 1. These needs are basically the need to be free from fear of physical danger and deprivation of basic physiological needs (see Sen, 1999). This need for self-preservation is concerned with the future of the people. It helps to answer the question of whether or not people are able to maintain their property or jobs so that they can provide food and shelter tomorrow, and the next day. In other words, if people's safety is not guaranteed, other things seem unimportant.

Once the physiological and safety needs and the need for family well-being are satisfied, social or affiliation needs emerge as dominant. This is not unexpected, because people are social beings; they need to belong to and be accepted by various groups. When the social needs become dominant, a person will strive for meaningful relations with others. After individuals begin to satisfy their needs, they generally want to be more than just members of a group. They feel the need for others, for both self-esteem and recognition from others. Brown & Harvey (2006: 77) related the Maslow's Social needs: acceptance, feeling of belonging to the value system that underlying organisational development approach of increasing individual growth and effectiveness of creating the climate that develops human potentials while achieving organisational goals.

Most people need a positive evaluation of themselves that is based in reality on recognition and respect from others. The satisfaction of these needs produces feelings of self-confidence, prestige, power and control. At this level, people usually feel that they are useful and have some effect on their environment. Once esteem needs are adequately satisfied, self-actualisation needs become more important. Self-actualisation is the need to maximise one's potential, whatever this may be. According to Maslow (1943), what a man can be, he must be. Therefore, self-actualisation is the desire to become what one is capable of becoming. According to Greiner & Cummings (2005:89), the need for self-actualisation or fulfilment is an inherent potential of

individuals to pursue what he or she is likely to achieve under condition of openness and personal recognition.

While this framework may not apply universally, it may to an appreciable extent, reflect in reality the common welfare needs of people in most developing countries. In reality the suggestion that one level of need has to be completely satisfied before the next level emerges may not be applicable, because most people in a society tend to be partially satisfied at each level. However, in most developing countries, attention tends to be devoted to satisfying physiological and safety needs. Maslow's framework therefore plays a useful role in predicting where the majority of people in developing country will be likely to have unfilled needs. Maslow's hierarchy of human needs also contributes to the new ideas and concepts about a bottom-up development model.

The concept of bottom-up development could help to strengthen civil society and gain popularity among development practitioners. A strong civil society is an important foundation for democracy and even a necessity for effective and meaningful development in a developing economy. According to Prahalad (2005), the "bottom-up" system is a new concept of development, complete and coherent, designed to exploit every possible avenue of economic development. The "bottom-up" method of economic development is a new concept designed to benefit the poorest of a nation's people, particularly the landless poor. It is grassroots development on a large scale, growing rapidly from a few "entrepreneurs" to many hundreds of workers employed in "bottom-up" enterprises. Prahalad (2005) argues that the system builds upon existing local resources, improving, for instance, agricultural and small-scale manufacturing productivity and creating rural diversified non-farm employment for progressively larger numbers of people. The system is not merely self-sustaining, but self-evolving.

The "bottom-up" concept of development could offer Nigeria the opportunity to improve the well-being of its poor majority currently put at 70 percent of the population. This is because the system which focuses on encouraging (a) micro-entrepreneurs constrained by high-productivity competition and (b) the prevalence of large informal economic activities, may have encouraged "hidden entrepreneurs;". The only way to mobilise and integrate them in mainstream economic

activity is to try to improve their well-being and to harness their latent determination and attributes to succeed as business people (Prahalad (2005).

The most relevant lesson for Nigeria and indeed developing countries to learn from the new development strategy, is the understanding that development should start from below (from the majority). As stressed by Nwaobi (2004) resources should be channelled into those areas or those things that will benefit the majority; those areas that employ more of the majority, and those areas that have potentials of employing more majority without necessarily neglecting other important sectors.

The economy should be properly understood and factors that have contributed to the past economic waste well-articulated so they can be tackled. Development is for man and should start from man for the provision of his basic needs, food, shelter, clothing, health and education, first. Development should also include the promotion of gender equality and the empowerment of women, environmental sustainability and pursuing policy programmes that would reverse the loss of environmental resources. The ultimate purpose of the exercises is to treat men and women as ends, to improve the human condition, and to enlarge people's choices (Streeten, 1994:232).

A determined attack on poverty and hunger has led to the formulation of a new development paradigm that recognises the role of the state in protecting the rights of the weaker and poorer segments of the population and meeting their basic needs (Bukman, 2002:17). However, Todaro and Smith (2003:23) summarise the three basic objectives of development in all societies as: (a) to increase the availability and widen the distribution of basic life-sustaining goods such as food, shelter, health and protection; (b) to raise standards of living, including in addition to higher income, the provision of more jobs, better education and greater attention to cultural and human values. This serves not only to enhance material well-being but also to generate individual and national self-esteem; and (c) to expand the range of economic and social choices available to individuals and nations by freeing them from servitude and dependence not only in relation to other people and nation-states, but also to the forces of ignorance and human misery.

Attempts have been made to identify the relevance of incorporating emerging contemporary issues in economic development into Nigeria's development model. This is imperative since the

World Bank (2003a:59) claims that over 70 percent of the country's population are basically poor. In the next section, an overview will be given of Nigeria's economic situation and the question explained of why the country is still classified as poor in spite of its large potential in terms of natural resources and capital. In essence, the state of Nigeria's economy is analysed with respect to salient trends, challenges and impediments to development. This gives insights into why the economy has stagnated.

2.3 Overview of the Nigerian economy

According to Simpson (1987:205), Nigeria ranked among the few countries in the world, with the potential to achieve the status of a stable and sustainable developing economy at the time of its independence in 1960. Simpson maintains that the impressive foreign exchange earned by Nigeria during the oil boom encouraged the country's various governments to embark on ambitious investment programmes, which can be seen in the various national development plans.

Ajakaiye (2004:54) has shown that between late 1950s and the early 1980s, most African governments drew up comprehensive development plans usually in consultation with the local and foreign experts, to help coordinate their decision making. These national development plans were used as deliberate efforts by the governments to speed up the process of social and economic development in Nigeria (see Tomori & Fajana 1987:131). Assessment of the objectives and performance of the various national development plans between 1945-1995, however, reveals that the pre-independence development plans of 1945-1954 and 1955-1960 were mere listings of projects to be executed at the Federal and Regional Government levels. The plans failed to take account of the social and cultural background of all Nigerians, and lacked a clear understanding of the people's needs, and therefore could not perform due to a lack of national cooperation and common interest.

The Second Development Plan of 1962-1968 represented the first conscious efforts by the Nigerian government to put in place a plan that reflected common national interests, aspirations and objectives. The plan was principally expected to facilitate the highest possible rates of increase in the standard of living of Nigerians, and in wealth creation in relation to public support for the newly gained independent country. According to Awoseyila (1996:23-31) the plan's actual allocations and targets, however, showed that it aimed at accelerating growth and

sustainable development. The plan in the end was not efficiently implemented, since it relied heavily on external sources of funds to execute most of the projects. Also, the implementation was constrained by the political crisis of early 1966.

The Third Development Plan 1970-1974 was formulated at the end of the Nigerian Civil War. It aimed to speed up post-independence development and to essentially provide a master plan for rebuilding the country after the civil war. The plan recorded some positive achievement especially in the areas of improving the performance of the manufacturing, transport, health, education, information and social welfare communications and mining sectors. These significant achievements can be attributed to increasing inflows of foreign exchange from crude oil exports. In essence, however, the major constraining factor to the plan's implementation was inadequate manpower and executive capacity (Awoseyila, 1996:23-31).

The 1981-1985 development plan was the fourth put in place by the country's civilian administration. It aimed to improve the standard of living of the people and diversify the economic base from a mono-cultural economy (dependence on oil as the only source of revenue) to an economy strong in other sectors like agriculture, manufacturing and science and technology (Central Bank of Nigeria, 2000:1). However, the achievement of the targets was dismally low. The unimpressive performance of the plan was attributed to international oil market glut, due to which the projected foreign earnings from oil exports crashed due to the near collapse of the international oil market. Further attempts to finance the revised plan through external borrowing also failed due to the country's high external debt burden. According to Aremu (1997:1), since the beginning of oil glut, earnings of Nigerian economy from exports had been fluctuated downward with the consequent debt crisis to the extent the international community are reluctant to grant credit facility.

In 1986, the Structural Adjustment Programme (SAP) was launched. Its cardinal objectives were: restructuring and diversifying of the productive base of the economy in order to reduce dependence on the oil sector and on imports; achieving in short-to-medium-term fiscal and balance of payments viability; laying the basis for sustainable non-inflationary growth; reducing the dominance of unproductive investment in the public sector's efficiency enhancing the potentials of the private sector (Central Bank of Nigeria, 2000:1). The SAP unleashed serious

hardship on the Nigerian populace and worsened poverty levels, the crisis of Nigeria education since 1980s, has been rooted in the SAP (Fashina, 2003:35-42). According to (Fashina, 2003:36), the withdrawal of subsidies from education and health, imposing an educational policy that generated crisis in the entire system. However, the SAP did establish some salient macroeconomic factors such as trade and payment liberalisation; adoption of appropriate pricing policies for public enterprises (essentially the beginning of commercialisation and privatisation of unprofitable and inefficient public enterprises), and reduction of government deficit financing, to mention a few (Central Bank of Nigeria, 2000:1). It is important to note that some of the SAP prescriptions still form the pillars of Nigeria's economic agenda to date.

Nigeria's three-year Rolling Plan (1990-1995), Awoseyila, (1996:30) said was planned with a shorter duration for three major reasons, namely:

a) To avoid the risks of long-term planning in a mono-cultural economy based on projections of crude oil sales, given the volatility of international oil market;
b) To suit the highly changing international environment, characterised by uncertainty and the dependence of developing countries on rich counties; and
c) To make implementation and management of development easier than it had proved to be over a longer time frame of about five years. The country's long-term development plans had always failed to achieve their targets. Invariably, plans are better implemented if they are reviewed more frequently.

The Rolling Plan also provided the macroeconomic framework upon which projections for economic aggregates such as the GDP, population growth and investments are planned. However, after several years of economic planning, Ernest Shonekan, a former Nigerian head of state (2000:42), confessed that the country's economic progress over the years has neither matched its enormous resources endowment nor met the expectations of the citizenry, friends and well-wishers. In 2004 the country was still classified as a third-world country with a low income, Gross National Income, (GNI) of US$38.7 billion and GNI per capita of US$290 (World Bank, 2004b:253).

Indeed, Nigeria has lagged behind other oil producing countries in terms of development. Shamsuddeen (1998:29) stresses that efforts made in terms of the various development plans

which the country tried to implement, especially during the oil boom, have not been very successful, as discussed above.

The development impediments and challenges that have confronted Nigeria can be summarised as follows:

2.3.1 Undiversified economic base of Nigeria

Arnold (1997:126) says that the main problem facing development in Nigeria appears to be political rather than economic, particularly the habit developed since the oil boom of the mid 1970s of over-dependence upon oil to solve all the nation's problem. He stresses the urgent need to translate oil wealth into other forms of economic growth, because Nigeria's population is expected to double in years to come.

2.3.2 Weak manufacturing sector (industry)

A general belief is that, if a country is to develop rapidly, it must industrialise, since industrialised countries appear to be the most developed. However, to industrialise a country requires substantial capital investment, which is possible through either earnings from foreign exchange and exports; borrowing in the international financial markets; or allowing foreign businessmen to invest in the economy. Since the beginning of the oil glut, earnings in Nigeria from exports have fluctuated downward, with a consequent debt crisis pushing the economy into depression to the extent that the international community is reluctant to grant further credit facilities until the country shows a practical demonstration of improved ability to pay (Aremu, 1997:1-2).

The problem of a weak manufacturing sector is also linked to a hostile business environment, and to perceptions of risk and high costs of doing business. These factors have tended to cause some foreign companies in Nigeria to keep the bulk of their assets abroad. Analysis of panel data from 23 developing countries confirms that economic growth, predicable behaviour, trustworthiness and commitment from government institutions, infrastructurally developed cities and low tax rates are important factors in attracting foreign investment (Hsiao, 2003:893). Infrastructure is central to development and the state of infrastructural development in Nigeria is far from meeting the expectations of the average potential investor in the country.

2.3.3 The growing incidence of poverty in the Nigerian economy

The eradication of poverty is universally accepted as a primary developmental objective (World Bank, 1990:24). Nigeria is one of the poorest of the nations of the world, and is confronted with not just pockets of poor-disadvantaged or marginalised areas, groups and individuals, but with a situation of mass poverty. This is a situation in which most of the population exists at standards of living below those required for full development and the enjoyment of individual and societal well-being (Ukwu, 2002:44). The prevalent situation of mass poverty reflects the poor performance of the Nigerian economy. The level of economic performance in any country depends primarily on two factors: the level of resources relative to the population, and the level of productivity. According to Awoseyila (1999:31), the HDI of Nigeria was ranked 142nd among the 174 countries listed in 1997, and by 1998, the country had dropped to amongst the 40 poorest countries. The conviction, therefore, is that poverty has been on the increase, commensurately with the deterioration in the economy.

2.3.4 The impact of the external debt burden on the Nigerian economy

Bhattacharya and Clements (2004:48-49) argue that the high external debt service absorbs resources that could be used for essential spending on poverty reduction and diverts resources away from public investment. The large debt stock and crushing debt service burden have introduced a new vicious cycle to the development problem in Nigeria. Ogbu (2002:41) explains that, in many African countries, debt servicing in the face of inadequate foreign exchange earnings leads to severe import strangulation, and holds back export growth. This and other uncertainties created by debt further depress investment and output, escalating the current account deficit and leading to increasing debt and rising debt service obligations. External borrowing may have some desirable effects on the economy where such funds are properly invested into productive ventures or sectors. In Nigeria and other developing countries undesirable consequences of external debt constitute a serious constraint on economic development of the nation tend to outweigh these advantages most of the time.

2.3.5 Evidence of corruption in the Nigerian economy

Corruption is one of the major impediments to economic development in Nigeria. Transparency International, an independent organisation, consistently ranks the country as one of the most

corrupt in the world. Thomas (2000:144-145) identifies some of the many channels through which corruption can weaken economic growth:

a. Misallocation of talent including underutilisation of key segments of the society, such as women;
b. Lower levels of domestic and foreign investment;
c. Distorted enterprise development and growth of the unofficial economy;
d. Distorted public expenditure and investment and the deterioration of physical infrastructure;
e. Lower public revenues and less provision of the rule of law as a public good; and
f. State captured by the corporate elite of the "purchased" law and policy of the state, thereby undermining growth of output and investment in the enterprise sector.

Tanzi and Davoodi (1997) find in their studies that corruption increases public investment, because it creates opportunities for manipulation by dishonest high-level officials. It also skews the composition of public expenditure away from needed operations and maintenance spending and directs it towards new equipment purchases, thereby reducing the productivity of public investment, especially in infrastructure. According to these authors, under corruption, public officials shun health programmes, because they offer less scope for rent-seeking; this may reduce tax revenue, and compromise the government's ability to collect taxes and tariffs. Ledermann, Norman and Soares (2005:1), in their recent study, show that indicators of corruption are negatively correlated with important economic outcomes. This implies that corruption is a serious obstacle to development. Similarly, Mauro (1995:681-712) and Burki and Perry (1998) stress that corruption reduces economic growth, via reduced private investment. Kaufmann and Zoido-Lobaton (1999) also find that corruption limits development, as measured by per capita income, child mortality and literacy; and Bai, Norman and Wei (2000) argue that corruption affects the making of economic policy. There is little doubt therefore that corruption could have constituted a strong impediment to economic development in Nigeria over the last two decades.

Abdullahi (2000:70) believes that the Nigerian economy has failed to achieve expected growth, because Nigeria's people have failed to manage and husband it in such a way as to fully achieve

its potential. Sadly, people rather talk copiously about the potential than take concrete measures to exploit and harness this potential for the benefit and well-being of the Nigerian people. Abdullahi (2000), however, suggests that with political will and commitment to the national interest, the realisation of the large development potential especially in its agriculture is not impossible.

Having presented an overview of the major developmental features, trends and challenges in Nigeria, suffice it to respond to a pertinent question, namely, how Nigeria can accelerate the pace of economic progress. The next section, therefore attempts to identify and articulate policy-oriented development and growth prospects in the economy.

2.4 Development prospects of Nigeria

Nigeria is a developing country endowed with significant renewable and non-renewable resources (Oladunni, 2004:31). Since 1998, when a democratic government took over power, there have been a number of positive developments, which seem to suggest that the country is willing to transform and create an enabling environment for growth and development in the economy. The government has displayed measures of commitment to pursue some economic reforms, maintaining macroeconomic stability and growth, by enhancing policies that largely conform to global standards. Ogwuma (1996:6) says that the commitment of Nigeria to implement these economic reforms will among other things, qualify the country for debt relief. If all these reforms and policy are put in proper perspective, it can restore confidence in the Nigerian economy. More so, domestic and foreign investment will begin to proliferate and thrive. Employment opportunities and improved living conditions of Nigerians will begin to stimulate growth and development in the country (see Zarsky, 2005).

2.4.1 Liberalisation of the economy

The past two decades have seen a worldwide shift in markets with developing countries opening themselves to investment from overseas (Havrylyshyn, 2004:34). The guiding economic principles and philosophies of a liberalised market economy are being pursued vigorously by Nigeria. According to the World Bank (2004c:8), increased access to the markets of the developed countries is critical for the development of poor countries. However, many developing countries that have opened up their trade regimes are prevented from reaping the benefits,

because of market-access barriers imposed by developed countries, especially on agriculture, textiles and clothing. These are labour-intensive sectors where developing countries typically have a comparative advantage. Henry (2003:91-96) asserts that in countries that began to allow foreigners to hold shares in domestic firms, a diverse group including Brazil, Indonesia and Nigeria, investment growth averaged 1.1 per cent higher after liberalisation than before. The Nigerian government, therefore, needs to moderate its trade liberalisation policy as the economy seems too weak to absorb the negative shock from external trade (Olufemi, 2004:313).

2.4.2 Restructuring and privatisation programmes in Nigerian economy

The privatisation of moribund public enterprises that have contributed to mass corruption and economic waste in the country is a bid to encourage efficiency, speed up quality of service delivery, and generally stimulate a private sector-led economy. Tanzi and Schuknecht (2000:239) explain that the privatisation of public enterprises and a growing private sector participation in government-planned investment and public services seems widely accepted. The main vehicle for funding and managing investment and technological innovation efficiently, creating more jobs and labour income is by encouraging private sector-led growth and development. According to the World Bank (2003b:92), private sector investment, whether domestic or foreign, is crucial for the rejuvenation of the African economy.

A considerable literature about privatisation and experience with privatisation shows that it can reduce operating inefficiencies resulting from overstaffing or poor management of public enterprises (Tanzi & Schuknecht, 2000:175). The World Development Report (1994) says that privatisation is most meaningful, when there is potential for competition in a sector, regulatory requirements should then not be too strong, so that the public does not complain about abuse of monopoly power by the private sector. Butzen and Fuss (2003:1) further stress that private investment is a key variable in economies. It is therefore crucial for policy makers to understand the mechanisms that determine investment spending.

The Nigerian government has repeatedly stated that economic recovery and growth are high priorities on its policy agenda. This reflects recognition of the need to move the country from the current path of slow growth to a way of more robust and sustainable growth. Privatisation is therefore crucial to the government's economic reform agenda and essential to its objectives of

fostering economic competitiveness and strengthening a private sector-led economy (Otobo, 2002:159). There is increasing awareness of the strategic role of the private sector as the engine of economic growth and development, government predominance in economic activities is giving way to privatisation and commercialisation of public enterprise. The private sector is therefore expected to take the lead in promoting the growth of the manufacturing sector in Nigeria (Ogwuma, 1995:70).

However, Zinnes, Eilat and Sachs (2001:146-170) argue that the benefit of privatisation without a proper accompanying climate of open competition and rule of law may be very small or even zero. According to the World Bank (2000:545-576), privatisation can result in a strong concentration of ownership, and then a class of rent-seeking vested interests develops and captures the state to ensure that policies work in their favour and prevent competition this then slows further institutional and democratic development. Havrylyshyn (2004:40) believes that the state vested interest in privatised enterprises may not occur if the process is rapid.

2.4.3 Financial sector liberalisation and policy reforms

In 2004, the Nigerian government initiated a compulsory merger and acquisition programme of domestic banking institutions. The goal of this policy reform was to reduce the number of commercial banks from about 89 to a manageably small number with large capital base of about $250 million. Through this programme it was hoped that the banking groups at the end of 2005 would be better able to meet the demands of the changing domestic economy. Moreover, future challenges from the globalisation and liberalisation process can contribute meaningfully towards achieving sustainable growth and development in Nigeria. Concerted efforts are being made to restore the productive base of the economy, and this overhaul of the banking and finance sector to enable it to play an active role in financing manufacturing, agricultural and the mining sectors of the economy is part of the process. According to Kochar (1997:339), the major obstacle to the expansion of firms and productivity distribution is the limited availability of credit.

According to Quinn (2002:160), all countries in Africa have had severe economic problems of one type or another, though those with most economic accountability, they have fared better than those without such an accountability have tended to keep the levels of their currency aligned with market prices. They have higher levels of investment; higher levels of both agriculture and

manufactured exports; invest in industries in which they have long-term comparative advantage; keep their debt-to-export ratio relatively low; and keep export-agriculture taxation to a moderate level. It is in an effort to emulate their success that Nigeria has embarked on these economic reforms. Most recently, the International Monetary Fund has extolled Nigeria's economic reforms. In 2003, the economy grew at nearly 11 percent, its fastest rate in many years (IMF, 2004:55). This is attributed to increased oil production.

2.4.4 Attraction of foreign private investment into the agricultural sector

Attempting to expand the country's agricultural productivity, the Nigerian government has packaged some policy incentives to attract foreign large-scale commercial farmers into the sector. The policy aims to increase productivity and adaptability of crops, diversify the variety of crops; and enhance the nutritional value of food. It is equally important to combat the perennial problems of poverty, malnutrition, starvation and disease. Furthermore, the Nigerian agricultural sector has the capacity to create more jobs, directly in the farms and indirectly in the industries where agricultural raw materials serve as basic inputs.

2.4.5 Industrialisation policy and incentives for small, medium and large-scale enterprises

The overriding objective of the industrial policy being pursed by the Nigerian government is to accelerate the pace of industrial development by radically increasing value-adding at every stage of the value-chain (National Planning Commission, 2004:78-80). Small and medium enterprises are acknowledged to have potential for employment generation and wealth creation in an economy. It is important to provide a platform for increasing productivity related to import replacement and exports expansion; enhancing foreign exchange earnings; generating employment; and raising per capita income, which increases per capita consumption. In addition, a dynamic manufacturing sector creates investment capital at a rapid rate while promoting wider and deeper linkages with other sectors of the economy.

Nigeria has large domestic and regional markets for its products, both manufactured and agricultural. The country also has the potential of becoming industrialised, given the discovery of iron ore and coal and the establishment and take-off of the steel industry. According to Olomola (2004:181), the Nigerian government is already benefiting from the inflow of foreign investment into the country, which enables the economy to achieve growth.

2.4.6 Social and environmental services reforms in the Nigerian economy

The present democratic government is committed to improving the living standards and well-being of Nigerians. Concerted efforts are being made to increase the proportion of the country's federal budgetary allocations to education and health facilities, environmental protection, rural development and infrastructure as well as poverty reduction. With over sixty higher institutions of learning in the country, and the numbers of highly educated Nigerians both inside and outside the country, sufficient manpower and workforce is available for developmental activities in the nation (National Planning Commission, 2004).

The development prospect for Nigeria depends on the government's commitment to growth-inducing policies that are consistent with international standards, as discussed above. Boughton and Qureshi (2004:43) stress that policies in developing countries have improved, enhancing the countries' ability to better direct resources towards development policies both domestic and external.

In terms of the environment, the World Bank (1994) reports that, like most of sub-Saharan Africa, Nigeria's key environmental problems are soil degradation, water contamination and deforestation. If this is left unaddressed, these problems could cost the country an estimated $5 billion annually in the long term. Apparently alarmed by this report, the government has embarked on environmental renewal and development initiatives, the primary goals of which are: to take a full inventory of Nigeria's natural resources; to assess the level of environmental damage; and to design and implement restoration and rejuvenation measures to halt further degradation of the environment.

A primary difference between African countries with good economic performance records and those with poor records is the way these external factors are managed by domestic policies (Adenikinju, Soderling, Soludo & Varoudakis, 2002:645). This suggests the importance of adopting a proactive approach, showing commitment to sound macroeconomic management and instituting an unbiased legal framework to tackle the problems of development in Nigeria.

In the following section, a review of the development model adopted by the newly industrialised Asian countries (NICs), known as the Asian "Tigers" will be presented. Lessons for development that may be relevant to Nigeria will be drawn from this discussion.

2.5 Evidence from development models in Asian countries

New economic development and growth models have brought significant advances in the understanding of development and growth processes. They stress the importance of innovation, human capital accumulation, the development of new technologies and financial intermediation (Agenor & Montiel, 1999:703).

Empirical evidence reveals that countries that grow faster devote a larger share of their output to investment (in physical as well as in human capital) (Parente and Prescott, 2006:24). Lower inflation and a more stable macroeconomic environment often occur in more open than slow-growing countries. The experience of the selected East Asian countries provides important lessons about the policies that are compatible with rapid growth and development (Meyer & Grag, 2005:1). The rapid development of the NICs is sustained by private investment (induced by higher levels of domestic financial savings) and rapidly growing human capital (fostered by increased public spending on primary and secondary education and health services). In addition, a series of other factors have directly or indirectly played a significant role in what has become known as the "East Asian Miracle" (World Bank, 1993).

Modern literature on development seems to suggest that the implantation of the Asian model of development is crucial for most developing countries, especially in Africa. The reasons for this are discussed shortly. However, it is important to note that these Asian countries have all reached the status of "crossover" countries within reach of joining the ranks of developed nations.

Some development models to emerge from these countries include:

2.5 1 The adoption of special economic zones

These Asian countries opted for the establishment of Special Economic Zones such as Export Processing Zones, where manufactured exports were given adequate attention. In other words, this outward-oriented development model enables the countries to make successful inroads into the world's manufactured exports market (Meyer & Grag, 2005:1).

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Rising volumes of world trade in manufactured goods has also increased the importance of the industrial sector of these countries. The growth momentum of the East Asian counties has been dictated by growth of industrial output, rather than agricultural output as it was in the early 1960s, this changing pattern of output has become a stylised fact in the development process (Nidhiprabha, 2003:198). Nidhiprabha (2003) stresses further that the reason behind this rapid growth is the expansion in exports of manufacturing products, made possible by outward-oriented development policies that reduce the bias against external trade. Capital formation concentrate mainly in the manufacturing sector, thereby raising the productivity of industrial workers higher than workers in other sectors.

2.5.2 Encouragement of private entrepreneurs and institutions

Private entrepreneurs and institutions are motivated to grow and develop by government policies. There are platforms as well as deliberation councils through which government bureaus and business representatives exchange and share information about technological best practices, market opportunities and jointly find solutions to identifiable problems areas. Evans (1998a:75) also notes that the government-business relationship did not emerge spontaneously in either Korea or Taiwan, but was initially based on a deliberate “synthesis of scepticism and enlistment”. According to Aryeetey and Nissanke (2003:46), the East Asian governments are more accurately characterised as successful developmental authoritarian regimes, the economies are by no means homogenous in many aspects.

2.5.3 Adoption of sound macroeconomic policy management

The East Asian countries have achieved remarkable records of sustained rapid growth over the past three decades (Fishlow & Gwin, 1994:1). The economic development success factors of these countries could be attributed to improved and sound macroeconomic policy. Adopting the Asian model of good macroeconomic management has become an imperative for Nigeria and other developing countries. Venter & Neuland (2005:110) believe that improved macroeconomic fundamentals contributed to the stability and recovery in most African countries.

Therefore, sound macroeconomic policy, management and performance in the Asian countries has encouraged private sector-led economic growth by allowing private individuals to play a

positive role in industrial development. Fishlow & Gwin (1994) stress that these governments have triggered high rates of national savings, invested in universal education, and maintained a high calibre of professionalism in the civil service.

2.5.4 Adoption of a labour intensive manufacturing strategy

The promotion of a labour-intensive manufacturing strategy has induced productivity in the region and also attracted foreign investors from relatively costly industries in the advanced world, who have relocated their plants and production in South East Asian countries where wage rates are relatively cheap. The transfer of technologies and capital to the NICs has also resulted in the governments' rolling out extra incentives to export-oriented joint ventures and foreign investment (Meyer & Grag, 2005:32). According to Meyer & Grag (2005), virtually all Asian government have played and are still playing a strong role in the development of the local economy.

The inflow of FDI into the East Asian region has contributed to the changing structure of the economies by transforming predominantly agricultural countries into industrialising countries. The speed of this transformation depends partly on the flow of foreign direct investment (Nidhiprabha, 2003:202). The positive effect of FDI on the balance of payment leads to accumulated international reserves in host countries, which has a strong impact on the stability of their currencies.

2.5.5 Adoption of strategies to develop human capital

The East Asian countries under discussion have tended to introduce human capital development policies. Countries at higher development levels such as Malaysia and Singapore have put great emphasis on the role of government in providing education. The Malaysian government budget allocated to education is higher than that allocated to defence, reflecting a strong commitment to human capital development over the last decades. Malaysia and Singapore have achieved higher standards of education than other countries in the region, giving them a comparative advantage in producing higher value-added products and skilled labour-intensive products for export (Evans, 1998b).

2.5.6 Increased productivity and rise in real wages

The rise in real wages in urban sectors attracts unskilled labour from rural areas to the industrial sector. Consequently, the structure of employment also changes with a rising share of industrial workers in total employment at the expense of the share of labour in agriculture. High growth rates experienced by these countries are arguably the result of rapid expansion of output in the industrial sector, which can be explained by improvements in both the quality and quantity of the labour force employed in this sector. In other words, the East Asian economy has grown rapidly, because of the increased productivity of labour, rise in real wages, macroeconomic stability, infrastructural development, and a switch-over effect. The rural agricultural unskilled labour are absorbed into manufacturing enterprises (Nidhiprabha, 2003).

2.5.7 Mitigation of corruption in the economies

Although the East Asian economies are not insulated from corruption, it features in these economies more in the relationships between politicians and large private business concerns than in those between government officials and middle or lower class groups. In other words, the cases of corrupt practices among interest groupings commonly observed in other developing countries are not found in East Asian economies. According to Nidhiprabha (2003), in general, in the East Asian economies, strong control mechanisms are in place to check rent-seeking activities.

Having reviewed the East Asian economies and their development path and process, it is important to sketch the anatomy of a development model for one of these Asian countries that was at the same level of development as Nigeria in the 1950s and 1960s. It is likely that valuable development lessons can be drawn from such a model. In the next section, an overview and lessons from a Malaysian development model are presented.

2.6 Overview and lessons from a Malaysian development model

Malaysia operates in a mixed economy, and its public sector is efficiently managed. Malaysia as an upper middle-income economy and is already on the verge of becoming a newly industrialised country. The country is endowed with great natural and agricultural wealth. Its agricultural sector includes forestry, fisheries and rubber, which have long been key products for export. Its

second-tier export commodities include palm oil, cocoa, pineapple and coconuts, all the states produce rice, the main grain crop, but not for export. Malaysia is a major producer of tropical hardwoods. Overall, the main agricultural exports are palm oil, wood and wood products and rubber (Department of Information Services Malaysia, 2003:40-42)

The main mineral resources are tin, petroleum, copper, iron ore, natural gas and bauxite. Although Malaysia is only a small oil producer in terms of petroleum exports, revenue from petroleum exports contributes significantly in boosting the country's economic performance and growth (Department of Information Services Malaysia, 2003:41).

The Malaysian manufacturing sector records consistent growth since 1960 with vigorous encouragement from the government. Machinery and transport equipment constitute the majority of the country's export earnings. Other manufactured products include cement, refined sugar, wheat flour, other processed foods, fertiliser, plywood, radio receivers and automobile tyres. The country's major export and import destinations include Japan, Singapore and the U.S. A range of incentives, such as reduced duties applies to imported raw materials for the production of goods for export (Jan, 2003:42). Malaysia has a modern railway system and extensive waterways as well as a good road network, all of which are linked to eight seaports. The country has a total of 102 airports, of which 32 have permanent surface runways. The telecommunications system in the country is one of the best in Asia (Department of Information Services Malaysia, 2003).

According to Jan (2003), Malaysia's GDP grew by 5.4 percent in 2002, a figure expected to increase to 5.7 percent in 2003. The external reserve is put at USD34.2 billion, and the unemployment rate at 3.4 percent, which implies full employment. The growth rates for agricultural and manufacturing GDP in 2002 were 5.4 percent and 5.3 percent respectively. The exports and imports for the same year were RM39.7 billion or $4.96billion and RM13.4 billion or $1.68 billion respectively, showing a trade surplus of RM13.4 billion or about $1.68 billion.

The Malaysian government ensures that the economy continues to achieve sustainable domestic business and industry to generate higher economic growth. The country's National Development Policy (NDP) contained a long-term vision working towards 2020. The broad

objective of the NDP is to attain balanced development in order to create a more united and just society. Jan (2003) further explains other objectives of the NDP, which include:

a) Optimising growth by ensuring the goals of economic growth and equity;
b) Reducing and ultimately eliminating social and economic inequities and imbalances to promote a fair and more equitable sharing of the benefits of growth by all citizens;
c) Promoting and strengthening national integration by reducing the wide disparities in economic development between states, and between urban and rural areas in the country;
d) Promoting human resource development, including creating a productive and disciplined work force. The government is developing the necessary skills to meet the challenges of an industrial society through a culture of positive values and attitudes;
e) Making science and technology an integral components of socio-economic planning and development;
f) Relying more on the private sector's involvement in restructuring processes and mobilising high domestic savings to support investment;
g) Emphasising large-scale industrial production for exports for global markets in order to enjoy the advantages economies of scale and lower costs of production as well as restructuring strategic industries to nurture capital and technology-intensive and knowledge-based activities;
h) Instituting measures to reduce the deficit in the current balance of payments by encouraging domestic industrial inputs to meet domestic demand as well as exports expanding potential activities in the services sector that can be exported to correct imbalances in the services account of the balance of payments;
i) Establishing strategic alliance and niche markets overseas to encourage Malaysian investors to venture abroad source their capital from international markets in the era of increasing globalisation of business operations;
j) Maintaining an efficient management of the macroeconomy of the country and ensuring a prudent financial and fiscal policies besides developing a knowledge-based economy;
k) Increase national productivity by upgrading the knowledge, skills and specialisation of workers enhancing research and development (R&D) activities and achievement in science and technology; and

l) Extending the use of Information Technology (IT) to all economic sectors in order to accelerate the growth process.

In 1999, Malaysia undertook major banking reform that led to the merger of the domestic banking institutions into six large, strong domestic financial groups thus reducing the number of domestic commercial banks, finance companies and merchant banks (Department of Information Services Malaysia, 2003). The commercial banks located throughout the country are the largest and most significant providers of funds. They maintain trading and financial connections with the major financial centres of the world. The finance companies constitute the second most important source of private sector credit in Malaysia. Loans granted by finance companies are mainly loans for the purchase of motor vehicles, leasing finance, housing loans and other short-medium-terms business finance. Merchant banks complement the activities and services already offered by the commercial bank. They act as intermediaries in the short-term money market and the capital market. They provide corporate financial services and financial portfolio management.

The Government continues to give priority to education, with 27 percent of the total budget in 2003 being allocated to this sector. Greater emphasis is given to pre-school and primary levels. The government also runs integrated schools where students are offered a choice of subjects from three streams, focusing on the pure sciences and technology. To enhance computer learning and information communication technology, smart schools which are equipped with computer laboratories emphasise the use of software for the teaching of mathematics and sciences (Department of Information Services Malaysia, 2003). .

Malaysia has proved to be one of the most politically stable economies in South East Asia and a strong member of the Association of South East Asian Nations (ASEAN). It has maintained a steady increase in living standard with a per capita income that places it in the upper-middle income group of countries. With an expanding economy, Malaysia is one of the cross-over countries that may be ranked as developed in the near future (Nidhiprabha, 2003).

The development models of the Asian Tigers have been reviewed and specific development experiences and strategies drawn from the Malaysian economy. In the subsequent section,

some valuable information from these development models will be presented as lessons for the Nigerian economy.

2.7 Development model applicable to Nigeria

There is no reason to believe that developing countries are in principle incapable of reaching higher levels of prosperity. however, it is rather unlikely that the path to a higher per capita income will be the same as the path rich countries have followed in the past (Szirmai, 1997:54). According to Szirmai (1997), initial conditions for development differ in each period and in every phase of development of international economic and political order. This involves demographic development of world trade; international competition; technological development; the international balancing of power; the nature of relationships with rich countries. (Szirmai, 1997) stresses that around 1700, developing countries were about as rich as the present affluent countries at that time. In essence, Nigeria and other developing countries aspiring for break throughs in economic development can be advised not necessarily to adopt the development models of rich countries, but rather to follow policy decisions made in developing countries.

According to the World Bank (2004d:4), the lessons of research and experience have produced a broad consensus on an effective strategy for development, one that is country-owned and country-led. This promotes growth, ensures that poor people participate in and benefit from it, and produces maximum progress towards achieving a sustainable development and growth. A development model for a developing country like Nigeria could therefore incorporate the following**:** efficient utilisation of agricultural potentials; adoption of attractive manufacturing (industrial) incentives; attraction of FDI; outward-oriented or export-led development strategies private-entrepreneur driven development process; a strong and civilised professional civil service; human resources development; and an information and technology-driven model. Each of these measures will now be briefly discussed.

2.7.1 Efficient utilisation of agricultural potentials in the development process

A problem with developing countries, of which Nigeria is one, is the neglect of agriculture. The drive to industrialisation by many developing countries has often been highly damaging to agriculture, especially with little or no rural infrastructure (Sloman, 2003:746). Nigeria's socio-

economic history and development have been very closely tied to its agricultural sector (Abdullahi, 2002:67).

The Nigerian agricultural sector, Abdullahi (2002:68) believes has the potential to drive the economic development process of the country, as the following facts suggest:

a) Total land mass of about 923,771 sq km (92.4 million hectares),
b) Estimated arable land are 68 million hectares,
c) Natural forests and range land of about 37 million hectares,
d) Large diversity of livestock and wild-life,
e) Large rivers and lakes of about 120,000 sq km
f) Coastal and marine resources of about 960 km of shore line,
g) Variable suitable climates,
h) Large population estimated at 120 million,
i) Large consumers market,
j) Relatively high-levels of available manpower,
k) Large regional and continental African markets, and
l) Large potential world market.

Agriculture is assigned the role of providing food, and raw materials for industries, creating employment, providing a market for industrial products such as chemicals, and generating foreign exchange. With recent developments and the wide consumption and use of cassava for food security among the poor nations by the Food and Agriculture Organisation (FAO), the Nigerian government has quickly put in place a Presidential Committee on cassava production. The mandate to ensure that the country becomes a world-acknowledged cassava export nation (Abubakar, 2003:6). Agriculture has the capacity to mitigate the rapid rural–urban migration. One major reason for an increasingly large population in the urban areas is that people are no longer dependent on farms or subsistence agriculture. This is as a result of urban-oriented development strategies.

However, considering the number of programmes that have been introduced by the Nigerian authorities to resolve the country's food crises and the subsequent failures of these programmes, a radical departure from the old programme becomes necessary (Ilorah, 2002:81). It has been

suggested that agricultural biotechnology may contribute significantly in overcoming the perennial shortage of vitamins A and D, of iron, iodine and calories in the diets of people in developing countries including Nigeria. Therefore, the introduction of agricultural biotechnology will increase yields and the nutritional quality of crops (Johnson, 2002:1-2).

2.7.2 Adoption of attractive manufacturing (industrial) incentives

The manufacturing sector, including small-and-medium scale enterprises, has great potential for generating employment, foreign exchange and wealth in the economy. Nigeria's industrial policy should be made appealing to speed up the process of industrialisation by motivating and providing an attractive package of incentives for private entrepreneurs. The surest way to rapidly accelerate industrialisation in the economy is to put in place a conducive policy environment that will attract both local and foreign direct investment to the country. Walker (2006:27) stresses that the key to success of the industrialised countries was based on the platform for achieving diversification and economic growth. Nigeria with its large renewable and non-renewable resources should be able to articulate sound industrialisation policy.

2.7.3 Attraction of FDI into the economy

FDI brings great assets to a host economy if that country can induce investors to transfer their advantages in appropriate forms. Lall (2002:330) says the assets of FDI can include:

a) Provision of adequate capital. FDI brings in investable financial resources to capital-scarce countries. The inflows of capital to the resident countries are more stable and easier to service than commercial debt or portfolio investment within the domestic economies.

b) Provision of technology and experts to the resident countries. Developing countries tend to lag in the use of technology, and many of the technologies deployed even in mature industries may be outdated. The efficiency with which these countries use given technologies is often relatively low. FDI can drive development of modern technologies and raise the efficiency with which the technologies are used. Investors can adopt technologies to suit local conditions, drawing on their experience in other developing countries, may in some cases set up local Research and Development (R&D) facilities. They can upgrade the technologies as innovations emerge and consumption patterns

change. They can stimulate technical efficiency in local firms, both suppliers and competitors, by providing assistance, acting as a role model and intensifying competition.

c) Provision of skills and management expertise. FDI often possesses advanced skills and can transfer these to host countries by bringing in experts and by setting up training facilities. They also possess new management techniques, presumably among the best available whose transfer to host countries offers enormous competitive benefits.

d) Provision of market access to host counties exports. FDI can provide access to export markets, both for existing activities (that switch from domestic to international markets) and for new activities. More important is the fact that FDI is often by definition the only way to enter the international production systems that increasingly dominate trade in sophisticated and high-tech products. Export activity in turn offers many important benefits. These benefits include: technical information, realisation of scale economies, competitive stimulus and market intelligence.

e) Provision of environmental friendly technology: FDI often possess advanced environmental technologies and can use them in all the countries in which they operate

2.7.4 Outwardly-oriented or export-led development strategies through trade and regional integration

Nigeria should be committed to the full and complete implementation of the Economic Community of West African States (ECOWAS) and free-trade zone agreements, strive towards the creation of a single monetary zone and common custom territory. The relevance of trade, investment and regional integration is imperative. This is because developing countries that have attracted many of these foreign direct investment (namely Brazil, Chinese Coastal provinces, Colombia, Indonesia, Malaysia, Mexico, Taiwan, Thailand, and Turkey). These are countries with established records of foreign trade and with developed internal markets (Lieten, 2001:106).

This export model shows factors that enhance economic development. State and local policy makers need to support programmes that will expand the export sector. Export-based jobs can stimulate growth in other areas of the local economy (Mocombe, 2006). According to him, export-producing industries are believed to be critical to a region's growth for a variety of reasons. Firstly, export industries attract income from other countries, which income can be used to finance imports of goods and services. Secondly, export industries tend to be technologically

advanced and to operate at comparatively high levels of productivity. Thirdly, since export industries are often linked to other regions and industries, they encourage the integration of regions within the national economy; and fourthly, a strong export sector allows a region to shift part of its tax burden to residents of other countries. Mocombe, (2006) further links the export model with the innovation model, which he says is essential for maintaining economic prosperity; innovation and the creation of unique products.

2.7.5 Private-entrepreneur driven development process

Lessons drawn from the East Asian economic miracles reveal that the crucial success story behind their rapid development and growth is based on private-sector-motivated government policies. For Nigeria to increase the contribution of its manufacturing sector to the GDP and to increase its exports, a vibrant private sector that can respond positively to the rigors of market forces act as an engine of growth must be encouraged. According to Jenei (1999:60), the salient trend in modern public administration is the pursuit of greater operational efficiency and effectiveness. In the view of McDade & Spring (1998), a new generation of African entrepreneur is networking to change the climate for business and private-sector-led development. These thinkers say that this small but growing segment of African entrepreneurs may serve as a catalyst to improve economic conditions and stimulate private-sector-led development. These businesses span the extremes. The configuration includes informal and formal sector business, traditional and modern, indigenous and foreign-owned enterprises that are geographically dispersed in rural and urban areas.

2.7.6 A need for a professional civil service

There may be a strong need to put in place a highly civilised and professional civil service that can respond to the infrastructural, legal and market needs of private entrepreneurs. A responsive and efficient public sector should play the role of addressing the issue of market failure, and enforcing contractual rights, investment, property rights, and aspects of legal frameworks. The central role of markets is almost universally declared, but few government agencies in developed and developing countries would think of applying the concept of planning to their efforts to influence the directions of the economic and social progress driven by market forces (Baudot, 1999:28). According to Dickenson (1996:260), the role of government has changed from being the leading direct provider of economic and social investment to one of providing an enabling

economic and political infrastructure. The role of government is to ensure the rule of law and quality of governance and encouraging local and international companies to invest in production enterprises.

In addition, to complement the role of the market, a responsive and efficient public sector is required for formulating the development strategies and economic plans needed to use national resources in the best interests of the nation as a whole (Dickenson, 1996).

2.7.7 Human resources development

For meaningful economic growth and development to be achieved in Nigeria, the economic development model should help every citizen to realise his/her full potential for well-being, fulfilment and accomplishment of happiness, love and contentment. Nidhiprabha (2003:305) notes that countries like Malaysia and Singapore that have higher budget allocations to education than defence, achieve higher standards than other countries in the region. Since they enjoy a comparative advantage in producing value-added products and labour-intensive products for export. Past human resources development and anti-poverty strategies implemented in Nigeria were not sustainable. They appeared in the form of an ad-hoc, uncoordinated and more or less fire-fighting approach. Public projects such as the Directorate for Food Road, and Rural Infrastructure (DFRRI), the National Directorate for Employment (NDE), the Peoples Bank, the Community Bank, the Better Life for Rural Women, the Family Support Programmes and the Family Advancement and Economic Empowerment strategy could not add value nor produce any sustainable positive effect on the citizens. These public projects suffered severe problems such as poor coordination, the absence of a comprehensive policy framework, undue political interference, failure to target the poor, high levels of corruption and leakage in the economy (National Planning Commission, 2004:100).

Several recent empirical studies at the household level using panel data provide support for a strong interaction between human development and growth in income countries have put in place incentive structures and complementary investment to ensure that better health and education lead to higher income. The people have always benefited doubly; they are healthier and better educated, and they increase their consumption (Kanbur & Vines, 2000:93).

2.7.8 Information technology driven economy

The deregulation of the telecommunication sector in Nigeria has led to the arrival of more than three giant mobile telecommunication companies. The operation of these companies have caused much growth in the sales of mobile telephone lines and accessories. According to the World Bank (1996:28-29), high-quality communications are essential for countries that aim to participate in the global production structure established by multinational corporations, to respond promptly, to rapidly changing market conditions in industrial countries, or to participate in new export markets. Communication is vital for the functions such as long-distance service, including data processing, software programming back-office service and customer support.

For all these reasons, one would expect to find a positive correlation between telephone density and the degree to which developing countries are integrated into the global economy (James, 1999:22). James (1999) also believes that one of the most important mechanisms through which technology spurs globalisation is by making it more attractive for multinationals to engage in dispersion of their economic activities, in so far as this mechanism is driven by the desire to reduce costs, it is often developing rather than developed countries that will benefit from the globalisation this induces.

The era of globalisation is driven by computerisation, miniaturisation, digitalisation, satellite communications, fibre optics and the internet (Shamsuddeen, 1998:7). The global spread of production requires that, beyond the availability of new technology, two additional conditions be satisfied, namely, a liberal international trading system and a relatively well-educated labour force. When these are put in place, new systems of communication, and information processing and control can allow profitable production to be carried out virtually anywhere. Incidentally, no country is so remote that investors will be dissuaded by location alone, because modern production methods can be introduced into countries that previously were by–passed by economic development (Mandle, 2003:9 -10)

2.8 Summary of the review findings and conclusions

This chapter is devoted for an overview of the concept of economic development and the relevance to the Nigerian economy. The development impediments and challenges that have confronted Nigeria since it gained political independence. It also discusses the development

prospects of Nigeria. The analysis of the evidence from development models in Asian countries were reviewed. Specifically an overview and lessons from a Malaysian development model that could be applicable to Nigeria were expounded.

Literature suggests that Nigeria has not been able to make rapid economic development given its large potentials of renewable and non renewable resources. The development impediments of Nigeria were blamed on its undiversified economic base. The country was practically a mono-cultural economy with heavy reliance on crude oil exports to the utter neglect of other important real sectors such as agriculture, manufacturing, mining and quarrying. The external debt overhang and the debt service ratio over the exports rose to 23.9 percent in 1990, but had decreased to 7.2 percent in 2004 (CBN Annual Report and Statement of Accounts, 2005:76). Weak manufacturing and increasing rate of incidence of poverty further impeded economic progress in the country. Evidence of corruption in the economy dealt a major blow to economic development in Nigeria. Apart from corrupt leaders taking large sum of hard currency overseas, depleting resources to run the country, foreign investment into the country stagnated due to macroeconomic instability and the spite of corruption in the country.

The economic review also showed prospects of Nigeria's economic recovery especially with the enthronement of a democratic government in the country since 1998. Economic prospects were sited from economic reforms of liberalisation of the economy, restructuring and privatisation programmes to encourage organised private sector participation in the economy that was hitherto dominated by the public sector as at 1998. These reforms were aimed at attracting domestic and foreign investment into the economy. Financial sector liberalisation and policy reforms were pursued to reduce the fragmented banking institutions from a total number of about 89 to 25 in 2005 (CBN Annual Report and Statement of Accounts, 2005: 46). The banking consolidation was targeted at making the sector participate actively in financing the agricultural, manufacturing and mining and quarrying sectors production for economic development and growth. The review also revealed that industrialisation policy and incentives for small, medium and large-scale enterprises, social and environmental services were included in the reform policy package. The policy stances of these reforms are part and parcel of the National Economic Empowerment and Development Strategy (NEEDS) to grow the economy and attain the MDGs by 2015 (see the National Planning Commission, 2004:75-89).

A review of the development model adopted by the newly industrialised Asian countries (NICs), known as the Asian "Tigers" was done. Lessons for development that may be relevant to Nigeria are drawn, these include: the adoption of special economic zones, encouragement of private entrepreneurs and institutions and the adoption of sound macroeconomic policy management. Also drawn for the development model of the Asian countries include: the adoption of a labour intensive manufacturing strategy, adoption of strategies to develop human capital, increased productivity and rise in real wages and mitigation of corruption in the economies. The Asian model of economic development were focused on because Nigeria was at par with some of these countries in the 1960s in terms of aspiration to attain a high economic development and growth. Literature and evidence from these countries economic advancement have shown that they are regarded as "cross over" or newly industrialised countries.

Malaysia's development experience and lessons are drawn for Nigeria. Malaysia is one of the cross-over countries that may be ranked as developed in the near future. It has proved to be one of the most politically stable economies in South East Asia and a strong member of the Association of South East Asian Nations (ASEAN). It has maintained a steady increase in living standard with a per capita income that places it in the upper-middle income group of countries. With an expanding economy, Malaysia virtually has some salient similarities with Nigeria in terms of renewable and non-renewable resources endowment, heterogeneous and diversified ethnic and tribal population. It stands to reason therefore, that Nigeria can benefit from the lessons of development model of Malaysia.

The literature review has shown the state (situation) and challenges that faced the Nigerian economy. It is imperative to suggest that the policy reforms embarked on by the present civilian government should be pursued to conclusive and robust end by the next government as from 2007. A pragmatic approach to diversify the Nigerian economy by giving priority attention to agricultural development to complement in foreign exchange generation, in the provision of productive employment and food security in the country. The output performance and employment creation of the manufacturing sector will be encouraged if the reform to upgrade the energy (power) sector is speedily concluded. However, the silent disposition shown by Nigerian governments over the development of the solid mineral sector should be discouraged. A pro-

active deregulation and repositioning measures should be taken by government to open up and privatise the mines so that it can complement in the employment and income generation in the country.

A sustained effort to channel resources and improve the output performance and growth of the agricultural, manufacturing and mining sectors will raise the tempo of economic activities of employment generation, income, food security and foreign exchange earning to the country. The reform to mitigate corruption should be reinforced given the positive impact on the recent exist from the Paris Club debt burden and debt relief granted to Nigeria. The resources freed from the debt relief should be channelled to the health and the education sectors. Concerted efforts to reinforce the implementation of the various economic recovery reforms in terms of the diversification of the productive base of the economy, upgrading the power sector, committing the banking institutions to finance the production of the agricultural, manufacturing and mining sectors will lead to rapid economic development and growth in Nigeria.

In the next chapter, the policy framework of the MDGs is discussed, and efforts, challenges, and the role of development partners are presented.

CHAPTER THREE

POLICY FRAMEWORK TO ACHIEVE THE MILLENNIUM DEVELOPMENT GOALS IN NIGERIA.

3.1 Introduction

The upsurge of interest in studying the economic development of poor countries dates back to official calls for a new international economic order, usually by the United Nations (UN) and its various agencies. Thomas (2000:4) notes that development goals and targets have been reiterated in several areas related to poverty alleviation, and the goals have been agreed upon at a series of OECD, UN and World Bank conferences, national governments and international agencies remain unable to mount concerted and successful development efforts to remedy the situation.

However, the 1999s have witnessed the spontaneous creation of several national pressure groupings in different parts of the world, whose platform is the abolition of world poverty (Thirlwall, 2003:18). The development of the third world, which above all needs the eradication of poverty, is now regarded as one of the major problems facing mankind. This is one of the world's greatest social and economic challenges.

One of the most memorable moments of this trend came when the UN Assembly rose from the Millennium Summit, in September 2000, with the eight-point MDGs, binding countries to do more and join forces in the fight against poverty, illiteracy, hunger, lack of education, gender inequality, disease and environmental degradation. Commitments were made to specific time-bound targets and goals, all focused on the development of the third world. The Summit Report focuses the problem, saying that no country can achieve economic growth and development and reduce poverty, while its people cannot read or write, or while its people struggle with malnourishment and sickness. Yet as the new millennium began hundreds of millions of people still lack the minimal accepted levels of education, health and nutrition that so many in industrialised world take for granted (World Bank, 2001:7).

The MDGs state the paramount task of development, such as improving the welfare of all people on earth to help them realise their human potential, to reduce insecurity and increase opportunity, and to ensure that benefits secured in the current generation are sustained and augmented in the next generation (World Bank, 2003c:3). The MDGs set specific targets for improving poverty, education, and the status of women, health, environmental conservation and global development cooperation. Now widely accepted as a framework for measuring development progress, the goals focus the efforts of the world community on achieving significant, measurable improvements in people's lives. They establish yardsticks for measuring results, not just for developing countries, but also for developed countries that would help to fund development in programmes for the multilateral institutions that help countries implement the programmes.

Each of the goals is important by itself, but should be viewed together with the rest, because they are mutually reinforcing. Better healthcare, for example, improves school enrolment and reduces poverty. Better education leads to better health, and increasing income gives people more resources to pursue better education and healthcare and a cleaner environment (World Bank, 2003d). The purpose of this chapter is to set out and also highlight the background and policy framework of the MDGs. In most cases, the challenges facing and progress towards the goals are also assessed.

3.2 Policy framework of the MDGs

The goals are interrelated and mutually reinforcing, while they aim to eradicate poverty, human suffering and misery in developing countries. The eight development goals approved by the UN Assembly (United Nations 2003) are shown in Table 3.1.

Table 3.1 The MDGs, targets and main challenges

Goal Number 1	**Eradication of extreme poverty, extreme hunger and malnutrition**
The target	To halve the proportion of people living on less than a dollar a day and those who suffer from hunger by 2015
The main challenge	In the developing world an estimated 1.2 billion people survive on less than $1 a day, 800 million are undernourished and 153 million children under age five are underweight. In Sub-Saharan Africa half of the population lives in poverty.
Goal Number 2	Universal primary education
The target	To ensure that all boys and girls complete primary school by 2015
The main challenge	The major challenge is that an estimated 114 million children of primary school age in the world are not enrolled in school, depriving one in every five children of access to even the most basic education.
Goal Number 3	**Promotion of gender equality and empower women:**
The target	To eliminate gender disparities in primary and secondary education, preferably by 2005, and at all levels by 2015
The main challenge	Gender disparity exists everywhere in the world. Overcoming women's disadvantages in the labour force and increasing their representation in public life also help to encourage girls to attend and stay in school. There is urgent need of overcoming the social and economic obstacles that stop parents from sending their daughters to school, girls safety and lack of suitable toilet facilities inhabits attendance.
Goal Number 4	**Eradication of child mortality:**
The target	To reduce by two thirds between 1990 and 2015 the under-five mortality rate
The main challenge	Close to 11 million children under the age of 5 die in the world every year, well over 1,200 every hour, mostly from easily preventable or clinically treatable sicknesses. Child mortality is closely linked to poverty.
Goal Number 5	**Improvement of the health of mothers:**
The target	To reduce by three quarters, between 1990 and 2015, the maternal mortality rate
The main challenge	Globally, some 500,000 women die in pregnancy or childbirth each year, one every minute. Most of these deaths occur in developing countries. The rich countries' average maternal mortality ratio is around 21 deaths per 100,000 live births, while this ratio may be as high as 1000 deaths per 100,000 live births in poor countries.
Goal Number 6	**Combating of HIV/AIDS, malaria and other diseases:**
The target	To halt and begin to reverse the spread of HIV/AIDS and the incidence of malaria and other diseases
The main challenge	HIV/AIDS is the leading cause of death in sub-Saharan Africa and, worldwide, the fourth greatest killer. Sub-Saharan Africa is the most affected region, but other regions, including South Asia and the Caribbean, are experiencing rapid increases in the incidence of HIV/AIDS. Malaria is endemic in large parts of the developing world, particularly in tropical and sub-tropical regions. WHO estimates that 300-500 million cases occur each year, leading to 1.1 million deaths (WHO:2002). Almost 90 percent of all cases of malaria occur in sub-Saharan Africa, where children are the most affected and malaria may account for as much as 25 percent of child mortality. Since children mostly bear the greatest burden of malaria, the millennium declaration focuses mainly on monitoring children under five years of age.
Goal Number 7	**Ensuring environmental sustainability**

The target	To integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources by 2015 to reduce by half the proportion of people without access to safe drinking water; by 2020, to achieve significant improvement in the lives of at least 100 million slum dwellers
The main challenge	Almost 2.4 billion people do not have access to improved sanitation and some 1.2 billion do not have access to an improved source of water.
Goal Number 8	**Development of a global partnership for development**
The target	To ensure that rich countries take responsibility for establishing equitable access to their markets and technology and for creating a favourable financial environment. Good governance and focus on social needs and human capital are essential for developing countries to achieve the goals within their own territories
The main challenge	Pledges to increase development assistance should be honoured and progress on relieving the debt burdens of poor nations needs to be stepped up. The promise of the Doha round of international trade negotiations should be fulfilled, including the reduction of agricultural subsidies, which disadvantage farmers of developing countries in the world market.

3.3 The MDGs: efforts, progress and challenges in Nigeria.

This section deals with the assessment of the efforts and progress made and the challenges facing Nigeria in its efforts to reach the MDGs by 2015. The new civilian administration in Nigeria has since 1999 prepared an economic development plan that focuses on the economic and social empowerment of Nigerians, wealth creation, employment generation, poverty reduction and value re-orientation. This programme, called the National Economic Empowerment and Development Strategy (NEEDS), is rooted in the experience of past failed plans, an articulation of a clear national purpose or vision, and a realistic appraisal of what is feasible within the medium to longer-term framework (National Planning Commission, 2004:12).

Table 3.2 below highlights the implications of alternative growth scenarios for per capita income and poverty reduction in the medium and long-run. The scenarios assumes that the respective growth rates are maintained until 2030, with no demographic transition (constant population growth rate of 2.8%), and also constant urbanisation growth rate.

Table 3.2. Implications of alternative growth scenarios for key development indicators

		2000 Actual	2015	2030
A	Per capita income average growth performance (1999-2002):3.6%	$300	$328	$352
	Poverty incidence (assuming 3.6% annual growth	70%	70%	80%
B	Per capita income assuming 5% annual growth	$300	$416	$576
	Poverty incidence (assuming 5% annual growth)	70%	70%	70%
C	Per capita income assuming MDGs-compatible growth rate of 7% per annum	$300	$556	$1,031
E	Urbanisation (with 5% annual rate growth)	42 million (35%)	87 million (48%)	182 million (66%)

Source: National Planning Commission, 2004. p23.

a) Scenario A considers the implication of Nigeria's maintaining the average growth performance recorded over the last four years (1999-2002), about 3.5% until 2030. Assuming that per capita income was $300 in 2000, by 2015 it should have increased by just US$28, and by 2030 by $52, leaving Nigeria as one of the poorest countries in the world if current trends in the rest of world continue. Poverty obviously will have worsened and, given the poverty-growth elasticity, its incidence could be as high as 80 percent in 2030.

b) Scenario B considers the implications of re-enacting the average growth performance in the late 1980s (5%); that is, the growth rate required to prevent poverty from escalating, but not enough to reduce it. Essentially, the poverty incidence will stay constant at 70% percent even in 2030, while per capita income will increase to $416 by 2015 and $576 by 2030, still leaving the average Nigerian very poor.

c) Scenario C considers the implications of Nigeria's fundamentally changing its strategy and achieving an average 7% percent growth rate per annum, which is compatible with the MDGs, and with reducing the incidence of poverty by half by 2015. This growth rate leads to the halving of the incidence of poverty by 2015, and leaves less than 20% percent of the population below the poverty line in 2030, provided that growth is broad- based and pro-poor (National Planning Commission, 2004: 23).

The rather gloomy scenarios, A and B, which derive from Nigeria's historical experience, are also in the context of rather high population growth rate (National Planning Commission, 2004:23). As illustrated in Table 3.2, Nigeria needs a vibrant and growing economy to be able to

reduce the level of poverty in the country. With its many renewable and non-renewable resources, offering opportunities to jump-start faster growth with sound macroeconomic policies

National Planning Commission, (2004:32-33) policy objectives include:

a) Sustaining high but broad, non-oil base growth of GDP at a rate consistent with poverty reduction and employment generation;
b) Diversifying the productive structure away from oil/mineral resources;
c) Ensuring international competitiveness of the productive sector; and
d) Systematically reducing the role of government in the direct production of goods and strengthening its facilitation and regulatory functions.

In the light of these macroeconomic policy objectives, the Nigerian government intends to deploy the following key instruments to achieve its growth and development strategy (National Planning Commission, 2004), the policy objectives include:

a) Privatisation, de-regulation and liberalisation;
b) Coordinated national sectoral development strategies for agriculture, and industries (especially small and medium scale enterprises);
c) Infrastructural development, especially electricity, transport and water;
d) Addressing the problems of financing the real sector and mobilising long-term savings and investment;
e) Effective regulatory regimes;
f) Targeting of programmes to promote private sector growth and development
g) Strengthening the machinery for tax collection, and tracking of all government revenues paid into different bank accounts, as well as for recovering debts, misappropriated and looted funds and payments for work not executed;
h) Tracking/responding to comparative/international standards;
i) Promotion of investments;
j) Export promotion and diversification of exports away from oil;
k) Seeking of debt reduction to make Nigeria's debt service sustainable;
l) Restructuring of the composition of credit to the private sector to boost production;
m) Provision of more credit to the private sector especially long term credit for real sector development;
n) Tackling of corruption and improvement of the efficiency of government accounts, and

o) Redefinition of the role of the government as a facilitator providing an enabling environment for the private sector to invest and operate in a free market-system.

Further challenges to achieving the MDGs include poverty, the most difficult challenge facing Nigeria and its citizens. Poverty is also a major hurdle that must be overcome in the pursuit of sustainable socio-economic growth. The welfare of the Nigerian child is also accommodated in (National Planning Commission, 2004:108) through the implementation of Child Right Implementation Committees at both the federal and state levels. The Committees are charged with the following responsibilities:

a) Protection of children from communal, armed conflict as specified in the Child Rights Act; Protection of children from all forms of abuse, neglect and exploitation, such as: economic exploitation, sexual exploitation, in the production and trafficking of narcotic drugs, use of psychotropic substances, and use in criminal activity
b) Protection from child trafficking; Protection from all forms of hazardous work; and
c) Recognition of the child's right to participate in recreation, leisure, association and matters affecting his/her life through promotion of representation, association and participation opportunities (National Planning Commission, 2004).

Table 3.3 Projected sources and means of employment generation

Sources of growth	Projected means of employment generation
Agriculture and rural development	▪ Productivity enhancement for peasant farmers ▪ New jobs in the rural areas arising from improved rural infrastructure ▪ Increased employment from commercial agriculture
Manufacturing and small and medium scale enterprises	▪ Increased production through coordinated programmes between federal and state governments ▪ Federal and state collaboration in the development of industrial clusters and parks
Solid minerals	▪ Prospective new investment resulting in increased mining and exploration activities ▪ Improvement in infrastructure at mining sites
Information and communications telecommunication	▪ Expansion of the telecommunication industry and the coming on board of second national carrier generating more direct and indirect employment
Services (especially tourism)	▪ Increase in distributive trade as a consequence of growth in the productive sectors and services ▪ New focus on tourism leading to more direct and indirect employment ▪ Growth in the entertainment industry especially export of home video leading to increased employment in the sector
Oil and gas	▪ The enforcement of local content policy leading to more jobs in the sector

	▪ Envisaged growth in the gas sector
Power	▪ Increased participation of Independent Power Providers (IPPs) expanding productivity and leading to greater demand for both skilled and unskilled workers in the sector
The social services (education)	▪ Commencement of Universal Basic Education (UBE) and the increasing growth of private provision of education and skilled training
Works and housing construction	▪ Use of public works in the construction of roads and other public utilities especially by state and local governments ▪ New and continuing boom in housing constructions all over the country continuing to generate huge employment
Intervention schemes	▪ Micro-credit and concessional credit to provide start-up capital for new business l generating new jobs

Source: National Planning Commission, 2004. p104

The plan aims also to ensure that the most vulnerable groups in society are protected using the targeted instruments shown in Table 3.4.

Table 3.4 Targeted instruments for the empowerment of the most vulnerable

Vulnerable group	Instruments/Interventions
▪ Rural poor	Access to credit and land; participation in decision-making; agric-extension services; improved seed, farm inputs and implements; strengthening of traditional thrift/savings/insurance schemes
▪ Urban poor	Labour-intensive public works schemes; affordable housing; water and sanitation skill acquisition/entrepreneurial development; access to credit and land; maternal and child health
▪ Women	Affirmative action (proportional or 30% representation) in all programmes; education, including adult education; scholarships; access to credit and land; maternal and child health
▪ Youth	Education; entrepreneurial development; skills acquisition and access to credit; prevention and control of HIV/AIDS and other sexually transmitted diseases
▪ Children	Children's parliament; juvenile Justice administration; Universal Basic Education; Girl Child Education; care of orphans and vulnerable children (HIV/AIDS-affected children); prevention and treatment of childhood diseases,
▪ Rural communities	Social infrastructure; water; rural roads; electricity; schools; health facilities; communications

Source: National Planning Commission, 2004. p104

The Nigerian government has also provided safety nets to help prevent the poor from becoming poorer and the non-poor from slipping into poverty. The safety nets give further protection for women and other vulnerable groups from diverse social perils, this is highlighted in Table 3.5.

Table 3.5 Safety nets for the protection of the women, poor and vulnerable groups.

Sources risks	Key risk group	Formal response
NATURA-drought, flood, erosion, rainstorm and food loses due to pests.	Well-to-do, poor, rural male, rural female, rural youth, rural female youth	Irrigation, agriculture extension services, forestation/agro-forestry, agricultural insurance
ENVIRONMENTAL-deforestation, desertification, oil spillage	Poor, rural male, rural female, rural male youth, rural female youth	Environmental measures to stem pollution, tree-planting campaigns, agro-forestry, incentives to convert to alternative energy use, enforcement of standard oil field practices
LABOUR-loss of job, drop in income	Poor, urban male youth, urban female youth.	Institutionalisation of unemployment insurance
SOCIAL-HIV/AIDS, infant and maternal mortality	Well-to-do, poor rural male, rural female, urban male, urban female, urban female youth, rural female youth	Comprehensive health centers, government immunization and inoculation programmes (NPI), health insurance scheme, HIV/AIDS programme. UBE
Gender-unwanted pregnancies and sexually transmitted diseases, job discrimination, harmful traditional practices	Poor, rural female, rural female youth, urban female youth.	Timely sex education at appropriate stage in school. social welfare counselling, enforcement of rights and appropriate legislation, advocacy
LIFE EVENTS-death of spouse, old age	Well-to-do, poor urban male female, rural female youth	Pensions and reform of inheritance laws.
CONFLICT-ethnic conflicts, armed robbery and child abuse	Well-to-do, poor, urban male, urban female, urban male youth, urban female youth	Police, social welfare counselling, national refugee commission, criminal justice system.
MACROECONOMIC-macroeconomic instability, unemployment.	Poor, urban male, urban female, urban male youth, urban female youth	Stable macroeconomic policy Social safety nets.

Source: National Planning Commission, 2004. p109

3.4 General appraisal and challenges facing the country in meeting the MDGs

The well-being of the society is entrusted to the state and its human development, which is partially measured by the extent to which all its citizens enjoy good health, education, shelter and the other amenities of life that are generally regarded as social services. Such basic human services as health, electricity (energy), sanitation, education, communication, housing and drinking water constitute social services, lack of access to these services by human beings is both a direct and indirect measure of human poverty (Ukwu,2002:44-45). The government's social and human development objective is to accelerate the provision of electricity, water, roads, health and sanitation in urban and rural areas, to provide reliable employment opportunities, redistribution of income and national economic growth are still much to be desired. According to the OECD-ADB (2006: 419), poverty and social indicators with respect to the MDGs in Nigeria compares unfavourably with the average low-income countries. The performance of the Nigerian economy based on the ranking of 125 economies of the world is shown in Table 3.6.

Table 3.6 The performance of the Nigerian economy based on the ranking of 125 countries/economies of the World in 2006-2007

▪ Infrastructure	Rank in the world	▪ Technological readiness	Rank in the world
Quality of electricity supply	119	Personal computers	107
Telephone lines	110	Technological readiness	86
Overall infrastructure quality	92		
▪ Health and primary education		▪ Market efficiency	
Infant morality	118	Prevalence of trade barrier	106
Life expectancy at birth	115	Intensity of local competitiveness	104
HIV prevalence	113	Brain drain	101
Primary enrolment	113	Ease of access to loan	91
Tuberculosis prevalence	110	Efficiency of legal framework	82
Malaria prevalence	106		

Source: Global Competitiveness Report 2006-2007. World Economic Forum. pp.312-313

Table 3.6 highlights the latest global assessment of the performance of 125 countries based on infrastructure; health and primary education; technological readiness and market efficiency. The assessment of the Nigerian economy based on infrastructural development shows some major disadvantages in terms of the quality of electricity supply, telephone lines installed, and overall infrastructure quality. Evidence suggests that electricity supply and overall infrastructure quality in Nigeria have not improved (World Bank, 2005:131-132).

Furthermore, findings based on the World Bank (2006:82-83) African economic and social indicators for Nigeria show that the gross national income per capita $430 is below the average for Sub-Saharan Africa (SSA) $600; life expectancy at birth is 44 years below the average for the SSA 46 years; maternal mortality rate (per 10,000 live births) is 800 below the average for the SSA 874; HIV prevalent rate (ages 15-49) 3.9 percent below the average for the SSA 6.1; student teacher ratio (primary school) 36 below the average for the SSA 46. The gross primary enrolment, total (of relevant age group) 99 percent above the average for SSA 92. The ratio of girls to boys in primary and secondary schools records 88 for Nigeria and the average for SSA 88. Similarly, Labour force participation rate, female (ages 15-64) 47 percent is below the average for SSA 63 percent; and improved sanitation (of rural population with access) 48 percent below the average for SSA 55. The findings show that the millennium development goals (MDGs) poverty and social indicators for Nigeria compare unfavourable with the average for low income country (OECD, 2006:419) The social and economic development indicators show

that Nigeria it is still faced with challenges and has not performed above the average for Sub-Saharan Africa.

3.5 The role of foreign partners in achieving the MDGs in Nigeria

Achieving the internationally agreed development goals, including those contained in the Millennium Declaration, demands a new partnership between the developed and developing countries (UN, 2002a:5). A developing country like Nigeria needs to mobilise domestic resources in addition to attracting international financial flows, and promoting various factors including: international trade as engine for development, technical cooperation for development, FDI, sustainable debt financing and external debt relief. Mobilising and investing these resources effectively are necessary for accelerating the development and growth needed to raise the standards of living of the populace, eliminate poverty, improve social conditions and protect the environment (World Bank, 2005:24).

3.5.1 Official Development Assistance (ODA)

Aid flows in the form of official development assistance (ODA) could play important role as a complement to domestic financing for development in the Nigerian economy (Aremu, 2002:45). ODA can be critical in enhancing the business environment for the private-sector and indeed quickening growth and development. Aremu (2002) states that ODA is also a crucial instrument for supporting education, health, public infrastructure development, agriculture and rural development and food security. Table 3.7 highlights the major sources of total net aid flows to Nigeria compared with two other West African countries and the total for Africa between 1999 to 2004.

Table 3.7 Aid flows to Nigeria, Burkina Faso and Ghana 1999-2004 US$ million

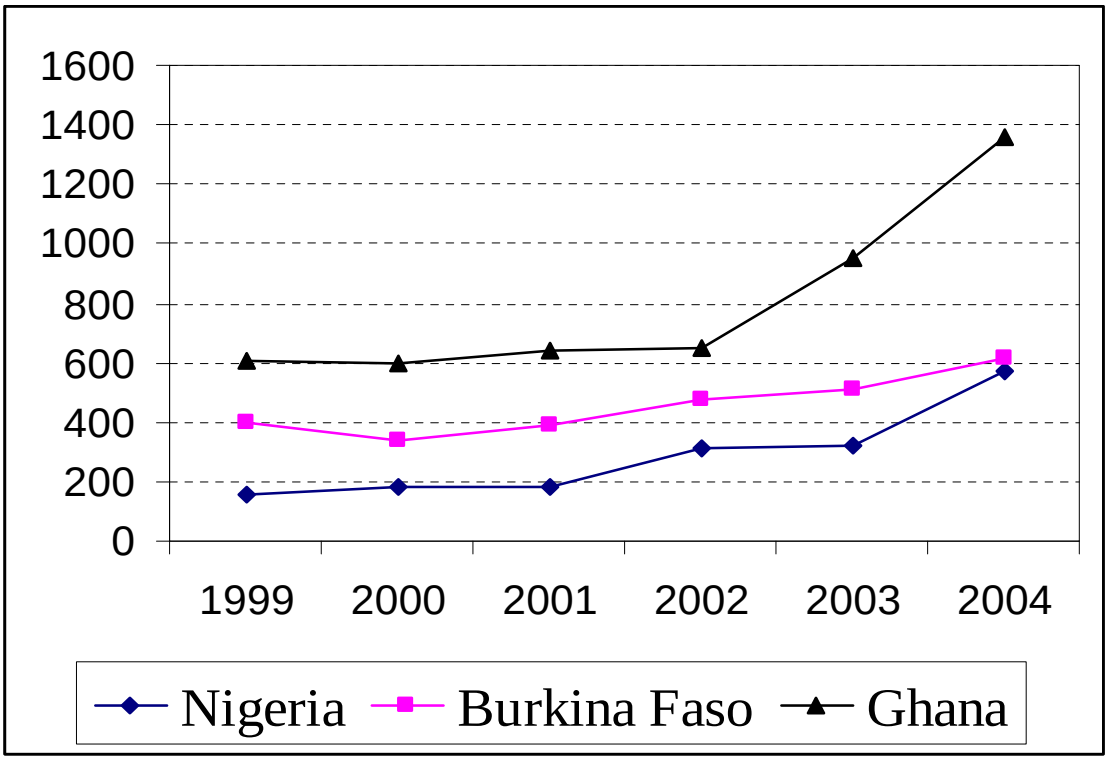
ODA net total, all donors				
	Nigeria	Burkina Faso	Ghana	Africa Total
1999	152	398	609	16074
2000	185	336	600	15717
2001	185	392	644	16681
2002	314	473	650	21540
2003	318	507	950	26781
2004	573	610	1358	29080
ODA net total, DAC countries				
	Nigeria	Burkina Faso	Ghana	Africa Total
1999	53	232	356	10340
2000	84	228	376	10373
2001	108	221	387	10159
2002	215	230	406	13362
2003	200	266	479	19158
2004	314	331	897	19301
ODA net total, Multilateral				
	Nigeria	Burkina Faso	Ghana	Africa Total
1999	96	157	250	5485
2000	100	104	222	5045
2001	79	158	254	6244
2002	101	198	238	7478
2003	118	238	462	7380
2004	260	278	451	9594

Source: OECD-ADB 2006 pp. 566-567

The analysis of the major sources of official development assistance (ODA) from all donors, from development assistant committee (DAC) countries and from the multilateral. The total net aid flows from all donors shows that Nigeria received US$152 million in 1999. In 2000, aid flows increased slightly to $185 million and by 2004, it reached $573 million. However, these amounts are far below the receipts in Burkina Faso, Ghana and the Africa's total within the period under consideration. Furthermore, aid from DAC countries mostly favoured Burkina Faso and Ghana than Nigeria. Similarly, the multilateral total net aid showed the same unfavourable trend for Nigeria especially for 1999 and 2001. Although the net aid flows to Nigeria from the multilateral source in 2000 and 2004 measured up favourably with those for Burkina Faso. However, Burkina Faso and Ghana received more ODA than Nigeria. It is evident from this analysis that ODA in Nigeria has not increased (World Bank, 2006:82-83; OECD-ADB, 2006:

566-567). Figure 3.1 is the graphical representation of the total net aid flows from all donors to Nigeria, Burkina Faso and Ghana within the period under consideration.

Figure 3.1 net total aid flows from all donors to Nigeria, Burkina Faso and Ghana 1999-2004.



Source: OECD-ADB 2006 pp. 566-56.

3.5.2 Trade and development

A universal rule based on an open non-discriminatory and equitable multilateral trading system, as well as meaningful trade liberation, can substantially stimulate development worldwide, benefiting countries at all stages of development (UN, 2002b:11). Trade liberalisation and export growth seem to be positively correlated, and export acts as an engine of growth. How powerful the engine is depend on the production and demand characteristics of the goods produced and exported (African Development Bank, 2000:133). According to the UN (2002c:58), the expansion of world trade is closely related to growth in world output and income. Increased access to the markets of developed countries is therefore critical to the development of poor countries. Agricultural subsidies in developed countries amount to more than $300 billion a year, roughly six times the total official aid to poor countries. These subsidies hurt growth in

agriculture, where the concentration of the poor in the developing countries is highest (World Bank, 2003e:8).

Recent development experience assigns a crucial role to trade and outward-oriented trade policy in the development process, and in particular to a policy focused on exports which serves to induce domestic firms to acquire the capabilities for facing foreign competition by adopting international standards and technology (Oyejide & Wangwe, 2003:225). Nigeria needs to engage in aggressive outward-oriented development strategies, especially in trade and in investment, to enhance the non-oil export earnings to finance development and growth-led projects in the country. If the country is to develop a deepening process of industrialisation, it should build a dynamic export sector. Economic development is closely linked with trade and industrialisation.

The remarkable achievements in terms of growth and development of the advanced economies of Asia, the so-called Asian Tigers (Hong Kong, Korea, Malaysia Thailand and Taiwan) are clear evidence of outward oriented-growth (Ogunlana, 1999:71). According to Ogunlana (1999), export of manufactured rather than primary produce has been the most viable export strategy for economic development. This accounts for many developing countries that have opened their trade regimes being prevented from reaping the benefits, because of the market-access barriers imposed by developed countries' especially on agriculture, textiles and clothing (World Bank, 2003f).

Economic development that is based on the export of primary commodities is often beset with problems of slow and unstable demand, unstable prices and severe competition from synthetics and other substitutes. Furthermore, the exports of primary commodities is more often influenced by vagaries of weather, pest, drought, diseases and, if they are minerals non-renewable supply, than are manufactured goods (Etuk, 1985).

Table 3.8. The composition of Nigeria's exports 1990–2005 (in percentage)

Description	Oil exports	Non-oil exports	Total exports
1990	97.03	2.97	100
1991	96.15	3.85	100
1992	97.94	2.06	100
1993	97.70	2.30	100
1994	97.40	2.60	100
1995	97.57	2.43	100
1996	98.22	1.78	100
1997	97.65	2.36	100
1998	95.47	4.53	100
1999	98.36	1.64	100
2000	98.72	1.28	100
2001	98.50	1.50	100
2002	94.57	5.43	100
2003	96.93	3.07	100
2004	97.53	2.47	100
2005	98.53	1.47	100

Sources: 1) Central Bank of Nigeria Annual Report and Statement of Accounts, for 31st December, 2001 p141
2) Central Bank of Nigeria Annual Report and Statement of Accounts, for 31st December, 2005 p197

Table 3.8 shows that Nigeria's export sector is still dominated by crude oil. It was only in 2002 that non-oil exports recorded 5 percent of the total exports within a period of sixteen (16) years starting from 1990 to 2005. This reveals that the country has not made any serious efforts to diversify its export base over the past decade. Stressing development in sub-Saharan Africa. Oyejide and Wangwe (2003:227) observe that sectors like agriculture and infrastructure, which would be supportive of industrial development, have lagged behind industrial requirements, exports have remained undiversified, undynamic and insufficiently competitive. Despite amounts of foreign exchange that accrue to Nigeria from crude oil exports, the level of economic development leaves much to be desired. The HDI ranked the country as among the least-developed in the world, with a high mortality rate, low literacy levels and low calorie intake, among other problems (UNDP (2000:160). This can be attributed to the tendency of Nigeria's past leadership to neglect agricultural and manufacturing production.

The country's principal trading partners as at 2001 is shown in Table 3.9, include the United States of America, the United Kingdom, Germany, and China. Table 3.9 clearly shows that China is fast dominating and becoming Nigeria's outstanding main trading partner.

Table 3.9 Trading activities between Nigeria and the rest of the world, 1997-2001.

	Totals, 1997-2001 $ mill.		Percentages, 1997-2001		Percentages, 2000-2001	
	Imports	Exports	Imports	Exports	Imports	Exports
INDUSTRIALISED NATIONS	25,827	56,827	61.3%	68.6%	58.8%	70.8%
USA	4,347	32,216	10.5%	38.5%	9.1%	41.9%
Canada	-	1,299		1.7%		1.1%
Japan	1,608	892	3.8%	1.1%	4.0%	1.1%
France	2,986	4,138	7.1%	5.1%	5.6%	5.0%
Germany	3,931	2,284	9.5%	2.7%	7.8%	2.6%
Italy	2,138	-	5.1%	0.0%	5.0%	0.0%
Netherlands	2,121	1,169	4.9%	1.4%	5.5%	1.4%
Spain	-	7,104		8.4%		9.3%
Switzerland	-	1,313		1.7%		1.4%
United Kingdom	4,389	864	10.5%	1.2%	9.7%	0.7%
AFRICA	1,948	8,325	4.5%	10.3%	5.2%	9.7%
Cameroon	-	839		1.0%		1.2%
Cote d'Ivoire	281	2,115	0.7%	2.6%	0.7%	2.4%
Ghana	377	2,467	0.9%	3.1%	0.9%	2.6%
South Africa	528	972		1.2%		1.0%
ASIA	10,694	10,579	25.0%	13.3%	27.2%	11.1%
China & Hong Kong	3,752	687	8.7%	0.8%	9.8%	1.1%
India	1,237	6,366	3.0%	8.1%	2.7%	7.1%
Indonesia	949	1,140	2.2%	1.3%	2.6%	1.9%
Korea	1,204	1,140	2.7%	1.3%	3.6%	1.9%
Singapore	1,084	-	2.6%	0.0%	2.7%	0.0%
Thailand	1,322	-	3.1%	0.0%	3.1%	0
OTHER	3,759	6,426	8.9%	7.8%	8.3%	8.5%
Brazil	1,614	4,021	3.8%	5.0%	3.6%	5.0%
Chile	-	760		0.9%		0.9%
Russia	240	-	0.5%	0.0%	0.8%	0.0%
WORLD	42,327	$ 82,146	100.0%	100.0%	100.0%	100.0%

Source: International Monetary Fund (2003). "Nigeria: Selected Issues and Statistical Appendix", IMF Country Report No. 03/60, p. 144 (Imports), 145 (Exports). [From IMF, Direction of Trade Statistics].

Another important outward–oriented policy that encourages and promotes trade flows that could accelerate rapid development in Nigeria is active participation in and transformation of the West African sub-regional trade (ECOWAS), together with other countries in Africa.

Apart from oil and mining activities, the principal manufacturing process in Nigeria involve primary processing-palm oil, groundnuts, cotton, rubber, chemicals, printing, ceramics and steel. Given the size of the Nigerian market, which is the largest in Africa, there is room for manufacturing (industrial) expansion (Arnold, 1997:125). Nigeria has not shared equally in

growth of trade with her trading partners. The increase in volume of exports has been slower, especially in non-oil products, because of the low value-added nature of the manufactured goods, the low income elasticity of demand in the global market. However, Annan (2002) maintains that one of the fundamental challenges facing the international community is to ensure that potential gains from more interdependent world economies are enjoyed by all, particularly the poorest countries and communities. Many developing countries have shown their commitment to new ways of doing business in a globalising world by integrating rapidly into the multilateral trading system at considerable cost. Thirlwall (2003:8) believes that the issue for developing countries (including Nigeria) is not what to trade, but on which terms should trade take place with developed countries.

3.5.3 Foreign Direct Investment (FDI) in Nigeria

Private international capital flows, particularly FDI, along with international financial stability, is vital complements to national and international development efforts (Lall, 2005: 44-46). FDI contributes towards financing sustained economic growth in the long-term. FDI plays an important role in sustaining equity-finance. Capital investment contributes to technology spillovers through learning by doing, leads to improvements in productivity and facilitates the transfer of human capital skills. Achy & Sekkat (2006: 47), stress that FDI is an important source of private international capital flows. It creates employment opportunities and contributes to economic growth of the host country. FDI is most often accompanied by access to foreign markets, new technology, and training (Stiglitz; Ocampo; Spiegel; French-Davis & Nayyar, 2006:179). They further argue that the new investment in plant and equipment associated with FDI create employment and real growth.

Nigeria needs to attract FDI in order to raise productivity to the level needed to increase the living standard of the majority of the people in the country. Zarsky (2005:1) states that FDI can potentially transfer technologies, skills and global market links, which is lacking domestically, thus stimulating industrial growth. Creating an enabling business environment for FDI in Nigeria will no doubt help to generate the additional external funds required by the country to meet the increased growth and development target of poverty reduction by 2015.

However, Nigeria has to make concerted efforts to improve its level of infrastructure, strengthen it's banking system, develop the capital market and quicken the pace of the privatisation programme which it started over five years ago. Furthermore, there is a strong need for the country to promote appropriate regulatory frameworks for a liberal investment regime, the upgrading of human capital, strengthening of the judiciary system and eradication of corruption. Given the country's enormous renewable and non-renewable resources and a large market, a broad compliance to these conditions should induce the inflows of FDI to the economy.

Table 3.10 shows the FDI inflows to Nigeria and other West African countries namely Burkina Faso and Ghana, between 1999-2004. The analysis of FDI inflows have shown favourable trend to Nigeria compared with flows to Burkina Faso and Ghana. In 1999 for example, Nigeria received US$1,178 million, the flows increased to US$2,040 in 2002. As at 2004, FDI inflows into Nigeria stood at US$2,127 million. This can be attributed to favourable investment reform packages being undertaken by the new democratic administration in the country.

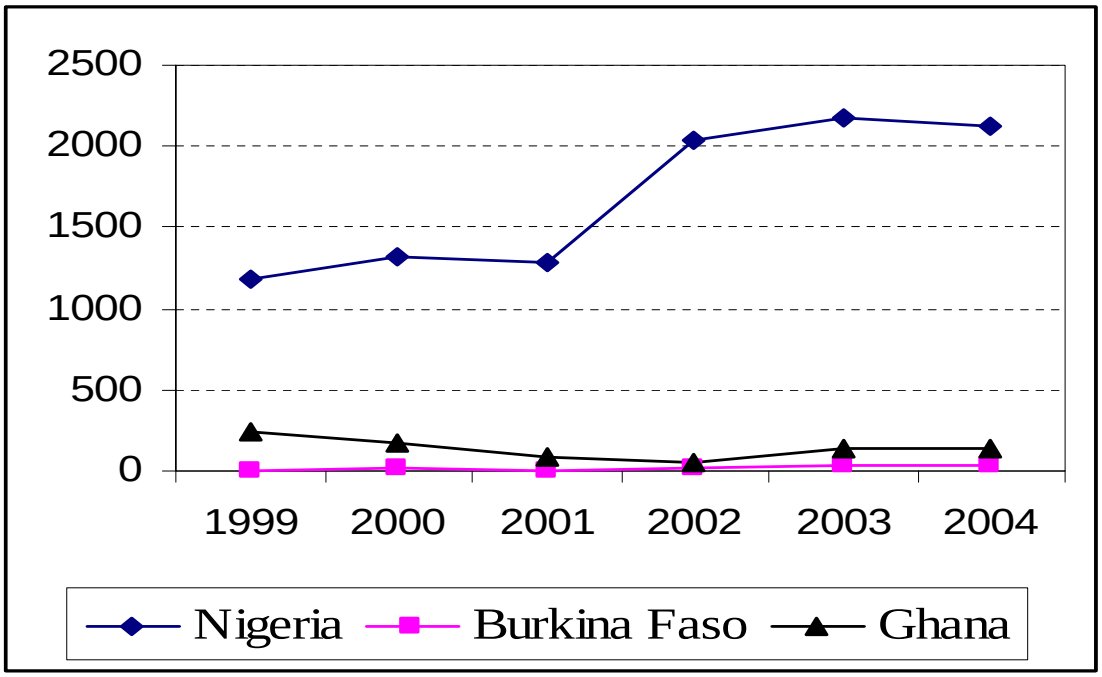
Table 3.10 Foreign Direct Investment flows to Nigeria, Burkina Faso and Ghana, 1999-2004 in US $ million.

	Nigeria	Burkina Faso	Ghana	Africa
1999	1178	8	244	11886
2000	1310	23	166	9627
2001	1277	6	89	20027
2002	2040	15	59	12994
2003	2171	29	139	18005
2004	2127	35	139	18090

Source: OECD-ADB 2006 pp. 566-56.

As an alternative for the ODA, Nigeria needs to focus on attracting more FDI into the country as this will help to boost the economy. Figure 3.2 is the graphical illustration of FDI inflows to Nigeria, Burkina Faso and Ghana within the period under consideration.

Figure 3.2 Foreign Direct Investment flows to Nigeria, Burkina Faso and Ghana, 1999-2004 in US $ million.



Source: OECD-ADB 2006 pp. 566-56.

3.5.4 External debt relief

External debt relief can play a key role in liberating resources that can be directed towards activities consistent with attaining sustainable growth and development. Therefore, debt relief measures should be pursued vigorously and expeditiously by Nigeria. According to the World Bank (2004), granting debt relief to heavily indebted poor countries can provide an opportunity for them to strengthen their economic prospects and poverty reduction efforts. In essence, debt relief impacts positively on progress towards the achievement of the development goals contained in the millennium declaration.

According to the African Development Bank (2000:96-97), the burden of external debt in West Africa is more severe than in other parts of the continent. The 11 West African countries are ranked as severely indebted, namely Benin, Burkina Faso, Cote d'Ivoire, Ghana, Guinea, Guinea-Bissau, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo. This implies that the debt service of these countries as a percentage of their GNP exceeds 80 percent. Alternatively, the ratio of total debt service to export exceeds 220 percent. Only three West African countries,

Benin, Senegal and Togo, are eligible for debt relief under the Highly Indebted Poor Countries (HIPC) scheme. Three countries Burkina Faso, Cote d'Ivoire and Mali, have been promised relief and the debts of Benin and Senegal have been judged sustainable at the current levels. Liberia is yet to qualify for highly indebted poor country status, but its debt burden is just as serious, amounting to $3 billion. Both Nigeria and Ghana are not eligible. It will be important to ensure that all highly indebted poor countries make use of the resources freed up by debt relief, to progress expeditiously toward poverty reduction and avoid the accumulation of new unsustainable debt (World Bank, 2003g:28).

Significant progress has been made towards providing deeper, broader and faster debt relief to some of the world's poorest countries in Africa, under the enhanced HIPCs initiative. According to Addison, Hansen and Tarp (2004:17) and Delphos (2004:236) 26 countries were receiving debt relief under this framework in 2002. The total amount was expected to reach to US $41 billion by 2006. In addition, the multi-country HIV/AIDS programme for Africa, the first of its kind under the MAP, is expected to commit flexible and rapid funding on terms agreed by individual countries based on their HIV/AIDS projects (Delphos 2004:236).

In his 2006 budget speech, President Obasanjo (2006:17) said Nigeria has successfully negotiated and accomplished the writing off of $18 billion of its debt of $30 billion owed to the Paris Club, and completed payback of the balance. This has significantly helped the country's outstanding total debt stock, which has decreased from $35 billion to $5 billion. The country's debt service burden has been reduced and the national budget expanded. The impact of debt relief can reduce income poverty. However, the amount depends on the characteristics of the country concerned and the elasticity of poverty reduction with respect to growth. The poverty impact of debt relief also depends on the scale of resources released from debt service for pro-services and infrastructure, and how effectively the system of public expenditure operates.

Such spending can be added to accumulated investment in a poverty-eradication project, and improved income for poverty reduction resulting from additional growth. It can also improve the non-monetary dimensions of poverty, reflected in better HDIs. According to the World Bank (2003h) and Reinikka and Svensson (2004), identifying the benefits from the resources released by debt relief is crucial for poverty reduction, and applies to new aid and public spending in

general. But Addison, Hansen and Tarp (2004:17) argue that whether the growth benefits of debt relief are realised will depend on factors, which cannot be included in either econometric or computable general equilibrium (CGEs) models.

Nevertheless, Dabla-Norris, Matovu and Wade (2004:260-262) in their study find that resources released from debt relief can be of potential gain to the social sectors. Debt services are equivalent to 62-71 percent of total public spending on education and health in HIPCs. The study by Dabla-Norris, Motovu and Wade (2004:260-262) find that debt relief produces significant human capital and growth effects, with poverty falling. They also say that, though the primary focus was on primary and secondary education, the finding could be related to territory education, which shows significant long-term growth effects through the formation of large scale skills.

The clues from the results and analyses mentioned above imply that donor countries should focus on priority projects that have the capability of reaching and impacting on the poor. Monetary arrangements and evaluation of such policy are necessary so that the resources can reach the targeted destination. It is also important to task governments with adequate preparations, so that they show in clear and convincing terms how they intend to invest the funds released from debt in social and economic sectors. A satisfactory programme of action that aims to reach the poor, with detailed description of the goals, strategies and action steps of this programme could be made conditions for debt relief.

There is little doubt that the HIPC debt relief initiative could be used in Nigeria to increase the government subsidy for primary education or even make this education free for all poor people. This could raise the confidence of poor households to send their children to school, and also help to reduce child labour. For debt-relief resources to reach the poor, the donor countries need to scale down the volume of reforms and conditions attached to relief by focusing on pro-poor projects. Attaching stringent conditions for debt-relief could constrain recipient countries' ability to process and invest the funds released in the social sector. Lindahl (2005:47) believes that the achievement the MDGs depends on major investment in the social sector. This will comprise of primary education; child and maternal health; efforts to mitigate the spread of HIV/AIDS and other killer diseases.

The donors could also decide not to tighten the conditions for eligibility so that other debtor countries can also benefit from the HIPC initiative in time. The recipient countries could be given the benefit of the doubt during determination of debt and the level of reform required, in the negotiation period. In packaging the proposal, allowance should also be made for new unexpected shocks such as environmental disasters, changes in export commodity prices and oil crises. Most importantly, HIPCs initiatives need not compensate or constrain the poor countries' other avenues of earning foreign resources. In essence, the rich countries should not tighten up their trade policies. As shown by Beghin, Roland-Holst and Van der Mensbrugghe (2002), OECD farm subsidies reduce rural incomes in poor countries by US$62 billion annually. Perhaps it should be emphasised again that debt relief initiatives should not be seen as efforts by the OECD to block other sources of foreign exchange to the developing poor countries.

Nigeria and other countries that have benefited from debt relief, must now put in place evaluation and monitoring strategies to keep track of the impact of such funds in social and economic sectors. In line with this, these countries could accelerate efforts to improve data collection, not only on the household level, but also by conducting benefit-incident analysis of the increased government spending arising from debt relief and reporting state and local government spending across basic services. The monitoring team could consist of credible men and women from various segments of the civil society. Also, a comprehensive blue print of national capacity needs to be made available as a common framework plan to monitor progress. In addition, the national, state, local monitoring teams could be linked to the recently launched African Monitoring Faith-based NGO. Criteria the teams would look for could include, transparency of appraisal techniques and processes; the involvement of all Nigerians in the diaspora in the monitoring process; and, most importantly, commitment and determination on the part of the OECD to fighting corruption in developing countries by refusing to accept looted funds as private investment in monetary or asset forms in any banking and financial houses overseas owned by anybody in or from the developing world. It is important to stress that foreign investment houses should desist from accepting looted funds from poor countries.

3.6 Summary of the main findings and conclusions

In this chapter, the policy framework of the millennium development goals (MDGs) were discussed. Of critical importance are the four avenues through which the external partners and resources could flow to Nigeria to support domestic resources. The provision of financial resources to accelerate the pace of growth and development required to make maximum progress towards meeting the MDGs are needed. These avenues are official development assistance (aid), trade, FDI and debt relief. The four sources constitute potential opportunities for Nigeria to increase its foreign earnings and gain assistance to pursue its development goals.

However, comparing the development assistance into Nigeria with that of other developing countries namely Burkina Faso and Ghana all from West Africa between 1999 to 2004, it was surprising to find that Nigeria in the recent years has received less in ODA annually. This is compared to the total net flows in African ODA. It has shown that relying on official assistance to complement economic development in Nigeria may not be a good option. The inflow and activities of the FDI into Nigeria therefore offers a good development option. According to Zarsky (2005:1) investment is the life blood of economic growth. FDI is critical to boosting growth and development as it provides long-term sustainable capital for development. So far with the investment climate in Nigeria being improved, there have been quite a good number of FDI inflows in Nigeria especially into telecommunication and the mobile phone industry. More manufacturing and engineering companies are being expected to reside in the country. It is also found that Nigeria has improved and signed trade relationships with many foreign countries on bilateral and multilateral levels. However, negotiations on better and robust trade policy deals are on-going with advanced countries to grant greater access to developing countries' exports commodities and increase foreign exchange earnings to develop their economies. Nevertheless, the trading activity between Nigeria and its trading partners is being dominated by China. Between 1997 to 2001, China had increased its trade (imports) with Nigeria to 9.8 percent. This can be compared with that of the USA 9.1 percent and United Kingdom 9.7 percent within the same period.

Similarly, the HIPCs initiative provides debt relief measures to eligible countries, helping to free funds that can be ploughed into poverty-reduction projects (like rural electrification, provision of

drinkable water, establishment of well equipped primary and secondary schools and payment of teachers). It also stressed the critical role of good governance in providing a good business environment and a safe landing for external funds from various sources. Nigeria has recently and successfully had a good deal with its Paris Club creditors. Most of its debts have been paid and others cancelled, debt-relief given to Nigeria to complement internal resources to accelerate growth and development in the country. In essence, ODA, FDI, trade and debt-relief arrangement can constitute important foreign pathways and roles in economic development of Nigeria. However, lots of concessions are needed from the developed countries to grant market access to Nigeria and other developing countries commodities. By implication, more employment opportunities and income could be created in Nigeria from the exports of non-oil commodities.

In the next chapter, the relevance of the agricultural, manufacturing, mining and quarrying, health and educational sectors as strategic sectors in fostering economic and development progress in Nigeria is discussed.

CHAPTER FOUR

THE RELEVANCE OF GROWTH IN NIGERIA'S SUPPORT SECTORS FOR ECONOMIC DEVELOPMENT

4.1 Introduction

Accelerating agricultural productivity, and enhancing the links with manufacturing and other growth sectors, to create employment and increase incomes through poverty reduction are prerequisites for structural transformation of Africa (ECA, 2005:13). The national economic development aspiration in Nigeria has remained that of altering the structure of production so as to diversify the economic base (Ajakaiye, 2002:49). Stimulating the structural performance of the growth sectors of the Nigerian economy has become very imperative towards achieving a high level of economic development. However, the country's past development programmes have failed, due mainly to problems of inadequate financial resources for development as well as other policy challenges that faced the country at various times.

The amount of financial resources needed to transform the Nigerian economy is far greater than the amount the country can generate internally. This underscores the necessity of Nigeria soliciting external resources to drive development. As recognised by the MDG last goal, which calls for a global partnership for development, attaining the agreed development outcomes will require in addition to stronger reforms on the part of the developing countries themselves, enhanced support from their developed country partners (World Bank, 2003h:7). Lessons from research and experience have produced a broad consensus on the effective strategy for development, one that is country-owned and country-led, that promotes growth, ensures that poor people participate in and benefit from it, and produces maximum progress towards the MGDs (World Bank, 2003i:4). According to the World Bank (2003i), the optimum development strategy has two interlinked and mutually reinforcing facets:

a) A climate that enables economic activity in the form of private firms and farms that invest, create jobs and increase productivity; and
b) Empowerment of and investment by poor people, through improvement of the enabling economic climate to spur growth and expand opportunities for the poor; empowerment of poor men and women through improved access to education and health fosters

socials inclusion and also promotes growth through the stronger participation of these groups in economic activity.

This development strategy, points to the strategic sectors that will produce maximum progress towards achieving the MDGs in Nigeria, assuming that the country can obtain adequate internal and external resources. These sectors include the agricultural, manufacturing, mining and quarrying, educational and health sectors. Table 4, shows the real GDP and the contribution of the agriculture and industrial sectors to the total GDP for the period of 1980-2003. There is a strong indication from the table that output performance of the real sectors needs to be increased. They are growth sectors, and policy strategies directed at enhancing their productive capacity. This can undoubtedly contribute significantly to sustainable growth and development in Nigeria.

Table 4. 1 The Real GDP of Nigeria between 1980-2004

Year	Total GDP	Agricultural GDP	Industry GDP	Services	Share of Agric.	Share of Industry
	US $ million	US $ million	US $ million	US $ million	To total GDP (%)	To total GDP (%)
1980	22357.0	6432.0	13605.0	3488.0	28.8	60.9
1991	26046.0	8022.0	13265.0	5222.0	30.8	50.9
1993	27396.0	8298.0	13210.0	5884.0	30.3	48.2
1994	27423.0	8498.0	12845.0	5910.0	31.0	46.8
1995	28109.0	8809.0	13009.0	6049.0	31.3	46.3
1996	29318.0	9162.0	13591.0	6317.0	31.3	46.4
1997	30109.0	9556.0	14005.0	6530.0	31.7	46.5
1998	30675.0	9942.0	13770.0	6645.0	32.4	44.9
1999	31012.0	10457.0	13419.0	6691.0	33.7	43.3
2000	32184.0	11002.0	14324.0	6671.0	34.2	44.5
2001	43382.0	12176.0	18199.0	11628.0	28.1	41.9
2002	44054.0	12692.0	16741.0	12393.0	28.8	38.0
2003	48766.0	13214.0	20484.0	13561.0	27.1	42.O
2004	72106.0	18747.6	35331.9	17305.4	26.0	49.0

Sources: 1) World Bank, African Development Indicators, 2003 pp15-18
2) World Bank, African Development Indicators, 2005 p217
3) World Bank, World Development Report, 2006 p297

Table 4.1 above shows a progressive improvement in absolute terms of the performance in agriculture and the general industrial output in the Nigerian economy. However, there is a quantum leap in terms of harnessing and stimulating production in the real sectors towards achieving the sustainable-growth targets set by the MDGs.

In the next section, further analysis is presented to buttress the role of the agricultural sector in providing food security, raw materials for domestic industries, foreign exchange from exports, structural transformation in the economy, employment opportunities both directly and indirectly. A dynamic agriculture can provide large markets for industrial products, which in turn will impact on poverty and hunger, and stimulate growth and sustainable development in Nigeria.

4.2 Relevance of the agricultural sector in Nigeria

In a developing economy like Nigeria, agriculture can play a crucial role of providing food security, raw materials for industries, employment, a market for industrial goods such as agro-chemical, tractors and fertiliser, and foreign exchange within the context of capital formation. These functions are very significant in Nigeria and, indeed, other developing countries, because of the peculiar characteristics of their economies. Federico (2005:1) says that agriculture has always been absolutely indispensable for the very survival of humankind. For centuries, agriculture has provided people with food, clothing and heating. It has employed most of the total active population. Each of the functions can now be briefly discussed.

4.2.1 Provision of food security

Elkan (1995b:111) argues that poverty, population growth and increased urbanisation all call for an increase in the output of agriculture. The importance of adequate food provision is acknowledged, and the problem seems to worsen, considering the following facts:

Nigeria has a rapidly growing population, with the population growth rate of the country more than 3.0 percent. This teeming population has to be fed. In addition to feeding the growing population, the food nutrition content of the people's diet, which is mainly starchy food such as rice, cassava, yam, coco yam, millet and maize, may also be problematic. The food content of the diet of majority of the people is lacking in nutrition and is not balanced due to high prices of protein-rich food like fish, meat, chicken, eggs, beans and beverages. Unfortunately, the outbreak of a bird flu epidemic in Nigeria in 2005 has automatically discounted chicken as protein source. Overall, therefore, any type of modern agricultural production proposed for the country should be rich in nutrition and able to reach the population, to improve their nutritional content of their food intake on a daily basis.

Nigeria is undergoing rapid urbanisation. This is a common trend in most developing countries that adopt policies that favour urban driven development. Consequently, urban areas are seemingly developed while rural areas are left in perpetual poverty. The result of this lopsided development policy is that large numbers of the population of the rural agricultural economy are tempted to migrate to the urban areas in search of white collar jobs. This situation often creates food shortages in both the rural and urban areas, since agriculture and food production are then abandoned to the old and weak rural population.

Increased per capita income often leads to a higher demand for food by the large low-income bracket in Nigeria. A rise in high-income elasticity of demand often leads to higher demand for food. The demand for food in Nigeria is estimated to grow by 3.5 percent per year, while the growth rate of food production is only 1.0 percent. The general implication is that domestic food production does not match population growth, so the country has to rely on food imports to feed the people. This depletes the scarce foreign exchange as the food import bills increase.

Nigeria also has high food demand due to rising inflation. Most developing countries, including Nigeria, often experience high inflation rates due to shortages of food. Understandably, food shortages trigger high prices and since the imbalance is not likely to be addressed through increased supply of food, labour representatives are often left with having to ask for wages increases or increments. Increase in wages does cause reciprocal action by traders, who then raise the price of food to meet the increase in marginal cost caused by the increased wages

Increasing the domestic agricultural production will play significant role in solving the problem of food insecurity, industrial raw materials and food importation. The foreign exchange saved can be channelled to other productive projects.

Table 4. 2 Food imports to Nigeria in US$ million (current prices) 1980-2003

Year	Amount in US$ million	Population
1980	3,161	71.1
1991	760	88.9
1992	807	99.2
1993	771	104.8
1994	738	108.0
1995	1,060	111.2
1996	929	114.5
1997	1,219	117.3
1998	1,397	120.8
1999	1,516	123.9
2000	1,573	126.9
2001	1,671	129.8
2002	1,919	132.7
2003	2,443	136.4

Sources: 1) World Bank, African Development Indicators, 2003 p106
2) World Bank, African Development Indicators, 2005 p104

Table 4.2 justifies the need to give agriculture and food production top priority in Nigeria since food import into the country may continue to put pressure on scarce foreign exchange. Close study of the table reveals that, in 1980, total food imports cost the country $3,161 million when the population was 71 million and that food importation has been rising with the increasing population of the country. One implication of food production not keeping pace with the rise in demand is a possible rise of wages outside agriculture. Table 4.3 shows the food production index and per capita food production in Nigeria. The figures reveal the necessity of increasing domestic food production in the country, which is currently not impressive in terms of the levels of production.

Table 4.3 Food production and food production per capita index (average 1989-1991=100)

Year	Food Production Index	Food Production per capita index
1980	58	78
1993	124	114
1994	128	114
1995	132	115
1996	139	117
1997	143	117
1998	149	119
1999	154	120
2000	156	118
2001	153	113
2002	156	114
2003	105	97

Sources: 1) World Bank, African Development Indicators, 2004 p221
2) World Bank, African Development Indicators, 2005 p217

4.2.2 Provision of raw materials for domestic industries

Agriculture is important in feeding local agro-process industries with raw materials such as animal skins for leather processing; cotton for textiles; cocoa for beverages and confectionary; maize and wheat for brewing; and so on. The import substitution industrialisation policy adopted by Nigeria in the 1980s compelled most manufacturers, both local and foreigners to establish and embark on domestic production of raw materials to feed their industries.

4.2.3 Provision of foreign exchange from exports

Most developing countries' exports are still primary agricultural products, ranging from textiles and clothing, leather, and cocoa beans to mention a few. In addition, export taxes from producers serve as a source of capital and can contribute to capital formation for economic development. Nigeria has recognised the importance of agriculture in capital formation since the late 1980s. Table 4.4 shows the composition and performance of major agricultural export commodities and the share of agricultural produces in the total exports in Nigeria.

Table 4.4 Major agricultural export commodities in Nigeria and the share to total exports (1980-2003).

Year	Forest products exports thousand cubic metres	Cocoa (thousand cubic metric tons)	Groundnut thousand metric tons	Oil palm products thousand metric tons	Cotton thousand metric tons	Total merchandise exports US $ million	Share of Agriculture in total exports US $ million	Share of agriculture in total exports %
1980	11	151	1	96	0	25,956	446	1.7
1987	17	0	0	0	0	7,545	258	3.4
1988	16	220	0	102	0	6,897	440	6.4
1989	11	149	0	64	1	7,870	255	3.2
1990	37	154	0	9	3	13,585	230	1.7
1991	49	161	0	8	1	12,254	214	1.7
1992	34	111	0	3	0	11,791	189	1.6
1993	431	161	0	2	3	9,924	275	2.8
1994	288	148	7	6	3	9,415	327	3.5
1995	269	139	1	11	2	11,734	403	3.4
1996	248	182	4	17	22	16,117	542	3.4
1997	0	147	22	10	32	15,539	522	3.4
1998	0	135	13	11	9	10,114	0	0
1999	0	208	5	14	7	11,927	0	0
2000	0	145	0	163	0	21,395	0	0
2001	0	175	2	14	20	17,949	0	0
2002	0	0	3	11	11	14,912	0	0
2003	0	241	3	13	26	0	0	0

Source: 1) World Bank, African Development Indicators, 2004 p
2) World Bank, African Development Indicators, 2005 pp.92-96

The contribution of agricultural export commodities to the total exports and as a foreign exchange earner has not shown significant improvement over the years, in spite of the sector's role as the main foreign exchange earner in the country prior to the time that crude oil exports became prominent. This trend has to be reversed, especially now that the country needs capital to fund the important development project needed to increase growth and build a modern infrastructure, to provide clean water and dependable electricity and to alleviate poverty in the country.

4.2.4 Structural transformation in Nigeria

The development path of the Asian countries discussed in chapter 2 started with agriculture-inducing industrial exports. This in turn absorbed surplus labour from agriculture for higher income distribution, thereby diversifying and transforming the economic base of these countries. This implies that agriculture in Nigeria can play a crucial role in accelerating the process of structural transformation by shifting the surplus labour from the rural agricultural economy to the industrial sector. This process will eventually lay the foundation for sustainable accelerated socio-economic development.

4.2.5 Provision of employment opportunities

In a developing economy like Nigeria, agriculture employs about 90 percent of the population. This figure can be reduced with increased large-scale commercial farming and export manufacturing industries that will attract surplus labour from the agricultural sector. However, agriculture still creates employment opportunities for the growing population in developing countries, and this is why the World Bank (2003j:8) says agricultural subsidies and escalating tariffs in developed countries costs developing countries an estimated 27 million jobs annually. This often frustrates efforts by poor countries to diversify their economies and move up the technology ladder.

4.2.6 Provision of large markets for industrial products

Agriculture also plays an important role in providing a market for agricultural capital products, tools, and machinery, such as tractors and harvesters, agro-chemicals and fertilisers. It is generally recognised that growth in agricultural production has become critically dependent on yield increases primarily based on the development of new high-yielding varieties (Srinivasan, 2003:187). As noted by Johnson (2002:1-2), agricultural biotechnology can contribute significantly to overcoming the problems of food shortages in developing countries by increasing yields and the nutritional quality of raw products, and ensuring an adequate amount of vitamin A for children. The role of the agricultural sector in improving food security, creating employment, reducing poverty and hunger, and stimulating much-needed growth and development is with little or no doubt vital for a developing country like Nigeria.

However, innovative technologies are inevitably required to transform present traditional agricultural production into modern biotechnology that caters for mass production of food, thereby helping to solve the problems of food insecurity, poverty and hunger in Nigeria. However, the agricultural, like the other growth sectors, can only grow through investments. This makes foreign investment into the Nigerian agricultural sector crucial. Agriculture remains the backbone of the economy in most developing countries and in the Nigerian economy, typically, it is the largest source of employment. Great majority in the poor nations source their livelihood in agriculture (Lindahl, 2005:52). A strong and growing agricultural sector is increasingly recognised as essential to economic development, both in its own right and to stimulate and support growth in industry. In the following section, the relevance of the manufacturing sector in economic development and growth is discussed.

4. 3 The relevance of the manufacturing sector in economic growth and development in Nigeria

Modern industry is seen as the hallmark of a developed economy (Lall, 2002:125). Indeed, industrialisation is widely accepted by both developed and developing countries as the centrepiece of the development process. Apart from the material benefits that industrialisation can bring, there is a general belief that it expresses a nation's success on earth and its ability to cope with the modern world. More broadly put, industrialisation is relevant to both developed and developing countries. Delbridge and Lowe (1998:5) identify the main contributions of the sector to economic growth and development as increasing the productivity rate in the production of goods and services; generating employment and skills; generating of wealth; distributing wealth; being a source of innovation and development of technological capacities; generating foreign exchange and trade services; and being an agent of cultural change and the impact on urban- rural transformation. Brown (1995:190) says that in all economies, manufacturing industries have been critical agents of structural transformation that make the transmission from a private, low-productivity, low-income state, to one that is dynamic, sustained and diversified. Industrial production is important for the development of the Nigerian economy for the following reasons:

4.3.1 Historical association with development

Less developed economies are committed to industrialisation, because they desire the national prestige which an industrial economy can give them over fellow primary producers, the desire for economic independence is expressed in the attainment of self-sufficiency in the economy. Remenyi (2004:116) stresses that South East Asia and North Asia, Malaysia, Singapore and Taiwan have out performed the rest of the developing world in taking advantage of the growth based on export expansion because of resolute commitment in industrialisation.

4.3.2 Inability to harness the potential in agriculture

Most developing countries can no longer push further the possibilities of agricultural development, because the price of agricultural products trends to fluctuate widely. These products have not kept pace with the price of manufactured goods, In other words, the terms of trade for agricultural commodities have deteriorated. Nigeria started to exploit the manufacturing industry when the primary sector's foreign exchange contribution to the economy started to dwindle (Ogwuma (1996:67).

4.3.3 Developing countries as agricultural societies

This is the traditional view, but the development of manufacturing can help the agricultural sector in many ways. The processing of agricultural commodities, which is part of manufacturing; increases the agricultural sector‘s income manufacturing also encourages efficient forms of production and marketing in the agricultural sector and provides agricultural inputs such as machinery and fertiliser, improves the availability of food items by making them available as processed food. Food processing can also help eliminate the problem of a market glut by providing an outlet for excess production. Furthermore, manufacturing helps agriculture by absorbing labour from the rural sector, thus enabling the modernisation and rationalisation of agriculture. A high degree of mechanised agriculture is essential for increased productivity in the agricultural sector. Szirmai (2005:265) says that the industrial sector offers a much better opportunity for capital accumulation, large-scale production and technological progress.

4.3.4 Manufacturing sector as complement to other sectors in job creation

The population of most developing countries is increasing and employment generation is not keeping pace with population growth. Therefore, manufacturing can serve as an additional major

source of employment. In fact, manufacturing can complement the absorptive employment capacities of agriculture, mining, and construction. Ogwuma (1996:67) says that the manufacturing sector plays a catalytic role in the modern economy it is an avenue for increasing productivity, employment generation and enhancing foreign exchange earning capacity. Furthermore, the manufacturing sector creates investment capital income at a faster rate than any other sectors of the economy.

4.3.5 Manufacturing as a relevant development strategy because of its efficient use of land resources

Agriculture is an extensive user of land, which is a finite resource, especially because of ecological problems such as erosion and desertification. This is perhaps why countries like Hong Kong and Singapore had no better alternative than to industrialise, so that available land could be optimally used.

4.3.6 Industrialisation promoting national integration

Industry involves large numbers of transactions, including farmers selling raw materials to wholesalers, manufacturers selling to wholesaler after processing, manufacturers purchasing electricity, legal services, communication and so on, both in and outside the country. This helps each sector to develop stronger linkage with other sectors. The greater the degree of linkage, the greater the interdependence and possibility of building a spatially integrated society. Wield (1994:1) argues that industrialisation is at the centre of development. According to Wield (1994), industrial development brings about most profound changes to the social and economic make-up of societies. Ogwuma (1996) believes that the manufacturing sector promotes wider and more effective linkages among different sectors in the economy.

4.3.7 The manufacturing sector providing additional income

Manufacturing has the potential to earn foreign exchange from exports after entrepreneurs have acquired the necessary technology and expertise and met domestic demand. According to Szirmai (2005:5) the industrial sector offers much better opportunity for capital accumulation, large-scale production and technological progress. Manufacturing plays a critical role as foreign exchange earner rather than saver, since attempting to conserve foreign exchange by restricting imports. For example, the adoption by many developing countries of import substitution

strategy, often fails woefully. In Nigeria, import substitution has failed, because the foreign exchange was being spent on plants and machinery imports, licensing fees and import of raw materials.

4.3.8 Industrialisation inducing technological development

Technology is the principal driver of industrial production and, in particular, of increasing productivity. According to Adiele, (2002:3-4) technology satisfies the need of making man more productivity in his environment. Most developing countries that have industrialised have experienced high levels of technological advancement and to that extent are less dependent on industrialised countries. Ndiyo (2003:848) states that the ultimate impact of technology is the enhancement of the well-being and influence of man through the creation of wealth. Seitz (2002:211) believes that technology makes economic growth and social change happen. The limited use of high technology in the developing countries is one of the reasons why they are less developed and less prosperous than the industrialised nations

4.3.9 Highly industrialised nations and the status of superpower

Most powerful countries in the world are also industrialised, which implies that industrialisation is closely related to a country being a world player in international events. It is also linked to a country being able to wield strong military might. Most industrialised countries are rich and this is critical to the strength of their military development. Jenkins (1994:13) states that rapid industrial growth in developed countries is responsible for the wide gap between them and the developing countries. It becomes imperative for developing countries to pursue industrialisation policy so that they can at least narrow the development and growth gap. These countries have increasingly advanced in electronics manufacturing and development.

In the following section, the relevance of mining and quarrying in economic growth and development is explored.

4.4 Relevance of mining and quarrying (solid minerals) in economic growth and development of Nigeria

It is important to emphasise that the mining and construction industries constitute an important part of the growth sector of a country. These sectors have the potential of contributing significantly to the development of the country. Nigerian has been ranked one of the most highly endowed in renewable and non-renewable resources (Oladunni, 2004:31). The mineral resources include copper, iron ore and steel, that can generate employment, income and provide raw materials for other industries in the country. Workers on road, dam and bridge construction in Nigeria have large potential in the production of iron, steel and natural gas. This can trigger the inflow of foreign investment into the manufacturing sector. The mining, construction and industrial activities in Nigeria hold great appeal and elicit very strong commitment for rapid growth and development of the country. Nevertheless, an analysis of the importance of mining and quarrying for Africa in economic growth and development is necessary so that Nigeria can draw lessons of policy relevance and interest from the activities of other African countries in policy deregulation.

Africa is endowed with rich and diverse mineral resources. In general the continent produces about 60 metal and mineral products in large quantities. Overall, the continent contains approximately 30 percent of the Earth's mineral resources, including 60 percent of cobalt, 70 percent of platinum and 35 percent of gold (Hilson, 2003:233). Hilson, (2003) has shown that an economy can gain significantly from large-scale mining operations and even more from small and medium-scale artisan operations. Reviewing the role of large-scale FDI mining policies as a context for small-scale mining in developing countries, Etemad and Salmasi (2003:59) argue that FDI theory from a mining perspective is no longer rich enough to provide enough guidelines for decision-making and policy formulation in the mining sector. The general theory of FDI is partly responsible for the misguided inadequacies of mining regulations in most countries where large-scale FDI mining multilateral firms hold monopoly power over medium and small-scale mining activities. To date, many international initiatives for the regulation of small-scale mining have been designed, yet very few have been successfully implemented by governments (Andrews, Minying, Lei and Cao, 2003:182-185). According to the UN (1996:43) many large companies seeking to establish operations in

developing countries have concerned themselves with the small-scale mining issue, establishing specialised divisions that deal with community relations.

Artisan and small-scale mining activities are now widespread simply because there are few alternative employment opportunities in many parts of the developing world, and an increasing number of rural inhabitants are turning to artisan and small-scale mining in order to feed their families. This further reinforces assertions that the industry is poverty-driven (Hilson, 2003:3).

Table 4.5 shows the small-scale mine employment capability in selected Africa countries. The employment capability of the peasant poor located around the mines in 25 African countries. It is evident that large numbers of people could be empowered to participate in these mining activities in the various countries shown above. This is useful since mining could be the only direct means these people have of access to the wealth and income generated by the mining and quarrying sector.

Table 4.5 Small-scale mine employment in selected Africa countries 2003

Country	Employment capability
South Africa	10,000
Tanzania	450,000 – 600,000
Zambia	20,000 – 30,000
Zimbabwe	50,000 – 350,000
Ghana	50,000 –300,000
Guinea	40,000
Ivory Coast	10,000- 15,000
Senegal	30,000
Ethiopia	100,000
Uganda	500 –10,000
Sierra Leone	30,000 – 40,000
Rwanda	5000 –15,000
Kenya	30,000 - 40, 000
Madagascar	5000 – 20,000
Morocco	5000 – 10,000
Mozambique	700 –100, 000
Namibia	10,000 – 20, 000
Burkina Faso	60,000 – 70,000
Burundi	10,000
Central African Republic	45,000
Chad	10,000 –15,000
DR Congo	150,000
Mali	100,000
Morocco	5000 – 10,000
Nigeria	10,000 – 20,000

Source: Hilson, G.M. 2003 p236

However, common sense suggests that mining activities at any level require some capital and skills in terms of techniques of production. Table 4.6 shows the different criteria used defining small-scale mining in some selected African countries where small-scale mining is fully in operation.

Table 4.6 Different criteria used in the definition of small-scale mining in selected Africa countries 1999

Country	Criteria used	Comments
South Africa	Capital investment	Black people empowered to own shares and operate at technical and board levels
Tanzania	Annual production capacity	Small-scale mining fully in operation
Zambia	Size of concession area	Small-scale mining fully in operation
Zimbabwe	Size of concession area, capital investment	Small-scale mining fully in operation
Ghana	Capital investment, number of participants	Small-scale mining fully in operation
Guinea	Type of mineral exploited	Small-scale mining fully in operation
Ivory Coast	Level of mechanisation	Small-scale mining fully in operation
Senegal	Depth of working, crude production levels	Small-scale mining fully in operation
Ethiopia	Annual production, level of mechanisation	Small-scale mining fully in operation

Source: United Nations, 2002 quoted in Hilson, G.M. 2003 p236

Literature has shown that different countries use a variety of criteria to evaluate the level and empowerment of small-scale operation on an annual basis. Some of these include: annual production capacity; the size of the concession area; capital investment; number of participants and depth of working; crude production levels; type of mineral exploited and level of mechanisation. These criteria are quite important since participants are expected to significantly boost output levels for various minerals. Also, mining production requires some level of capital investment to be able to make large impact in the sector.

According to the UN (2002d), African governments have relied on a wide range of criteria in their recent efforts to define artisan and small-scale mining, documented in national mineral

polices, codes and legislation, but the industry is far from achieving its full potential. The continent's operations employ at least three million men, women and children and these make notable contribution to the continental mineral output. The ILO (1999) estimates the value of gold and gemstones produced by artisan mining annually at US$1.4 billion in sub-Saharan Africa. In Ghana, the government invested a modest US$1.4 million to construct regional buying stations that pay world prices to small-scale miners for their gold, a move that has resulted in the collection of well over US$140 million in revenues that would otherwise have been lost (Labonne, 1996). In other African countries, such as Guinea and the Central Africa Republic, mineral production is almost entirely confined to small-scale mining. For the Central African Republic, 90 percent of diamond and 100 percent of gold production is carried out by small-scale miners; in Guinea, the share of small-scale mining in national mineral production increased from 66 percent in 1990 to almost 100 percent in 1993 (UNECA, 1993; Bocoum & Samba, 1995; United Nations, 1996; Hilson, 2002).

Artisan and small scale mining activities are strongly proliferating all over the African continent. In South Africa, artisan and small scale-mining is typically practiced in the poorest and most remote rural areas by a largely itinerant, poorly educated populace of men and women without employment alternatives (MMSD, 2002). Artisan and small-scale mining workers now feed their families with proceeds from their mining activities, emphasising the fact the industry is poverty-reduction driven. In many other countries, specific attention and efforts have been made to provide protection to small-scale miners by licensing, registering and documenting their operations. Some of the major reasons for this include the wish to:

a) Monitor and checkmate illegal mining and smuggling and trading activities;
b) Encourage private citizens as prospectors to increase mineral production, and to liberalise the marketing of minerals;
c) Curb the supply of gold to the black market;
d) Address the exploitation, by the small-scale mining sector, of specific mineral products;
e) Control the mining rights of cultural minorities within their ancestral lands;
f) Serve as sources of revenue for the government from the operators;
g) Address environmental problems as they arise, such as erosion and other hazardous environmental concerns;

h) Develop and exploit existing small mineral deposits;
i) Generate additional foreign exchange to the government; and
j) Generate employment opportunities and improve living conditions in the rural areas (Hilson, 2003).

Apart from the above reasons for licensing small-scale on artisan mining operations, there is a large need for government to control and protect the environment. This includes to put in place effective health and safety measures to safeguard the lives of miners to explore the need of adopting common marketing and buying centres for all licensed miners. Overall, the government has to introduce sanity in the sector by endeavouring to create incentives and discipline or penalise by using fines, imprisonment, or the holding, suspending and even cancelling of mining licenses or permits given to any miner that contravenes the legislation. The decentralisation of mining regulations is also important and can be achieved by the active involvement of local governments in small-scale mining activities as currently exercised in countries like Ghana, Indonesia, the Philippines, Sierra Leone and Zimbabwe.

Poverty reduction is widely acknowledged as a consequence of the encouragement of small-scale-mining industries in Africa. Many countries have decentralised the licensing and registration of small-mining operations to enable them to increase the exploitation of small mineral deposits, regulate the health and safety of miners, encourage additional revenue to the local authorities, provide employment opportunities, improve the living standard of the people and help them to be less dependent on national government and poverty reduction campaigns.

In Nigeria, the national government should consider the large opportunities offered by small scale-mining activities for poverty reduction, when determining to deregulate its policy and strategies on mining and quarrying (solid minerals) as many countries in Africa have done. Reed (2001:51) explains that Tanzania opened up its mining sector in the 1980s when it realised that it could offer prospects of attracting the much needed foreign investment and expand the sector. At 10 years ago the demand for Nigeria's minerals is relatively high, as shown in Table 4.6. Liberalisation of the mining sector could ensure increased production, and this implies more employment opportunities for skilled and unskilled men and women. Also, the employment

statistics shown in Table 4.5 should be higher given the size of the country in terms of geographical dispersal of these minerals in Nigeria.

Table 4.7 Demand and supply statistics of some processed minerals in Nigeria 1996

Raw material	National demand (quantity)	Supply (quantity)	Shortfall	% short
Beneficiated laolin	150,000	20,000	130,000	(87)
Beneficiated talc	50,000	300	49,700	(99)
Beneficiated phosphate	200,000	0	200,000	(100)
Beneficiated lime	500,000	20,000	480,000	(96)
Beneficiated gypsum	300,000	0	300,000	(100)
Beneficiated feldspar	100,000	10,000	90,000	(90)
Beneficiated bentonite	60,000	0	60,000	(100)
Beneficiated barytes	100,000	20,000	80,000	(80)
Soda Ash	60,000	300	49,700	(99)

Source: Aliyu 1996:158.

The mineral resources shown in Table 4.8 play an important role as inputs or raw materials for the agricultural and manufacturing sectors. Table 4.8 contains the principal uses of the above mineral resources.

Table 4.8 Principal importance and uses of some of the minerals in Nigeria 1996

Minerals	Principal uses
Kaolin	Paper, rubber, pottery, ceramics and pharmaceuticals
Talc	Ceramics, paint and cosmetics
Phosphate	Fertilisers
Lime	Water treatment and steel making
Gypsum	Cement
Feldspar	Glass, Pottery and ceramics
Bentonite	Water and oil-well drilling
Barytes	Oil-well drilling and white paint pigment
Soda Ash	Detergent and glass

Source: Aliyu 1996:156.

Ongoing discussion and analysis of the relevance of the mining sector has shown that it can generate employment opportunities for rural artisan and small-scale miners and so improve their living standards, increase collection revenue for national, state and local governments, and raising additional foreign exchange for the national government of Nigeria. The contribution of the mining and quarrying sector to economic development of the can be felt if policy control and legislation in the sector is deregulated to incorporate local authorities in the licensing and

registration of mining operators in the country. Access to mineral exploration by small-scale miners will provide a means of livelihood, jobs and business opportunities to millions of Nigerians who are still roaming the streets looking for employment. The study has, however, shown that the mining sector can also provide important inputs for the agricultural and manufacturing sectors. Mining has been a growth and development sector in many other African countries like Botswana, DR Congo, Ghana, Ivory Coast, Namibia, South Africa and a host of other countries in the continent depend on it for domestic and foreign income. According to Hilson (2003:18), the activity of mining is mainly poverty-reduction driven Hence, it is people who initiate and direct this poverty alleviation measure for any country as a whole, with little cost and limited intervention on the part of the government. In the next section, the role and importance of the socio-economic sectors like education and health in economic development and growth are discussed.

4.5 Relevance of the growth support sectors, education and health, in achieving economic development in Nigeria

The growth support sectors, education and health, provide strong support and contribute immensely through the provision of human capital, and enhancement of productivity, employment and income. Advancing the performance the health sector can ensure good health and a healthy work force for sustainable development. In this section, the outlook for the Nigeria‘s educational and health sectors is discussed. The education sector is presented first, followed by the health sector.

4.5.1 Education as condition and support sector for MDGs in Nigeria

Formal education plays a critical role in the development of human capital and economic generation. Education has been linked to economic progress for both the individual and for the society (Koven & Lyons, 2003:50). Worldwide, countries have come to recognise the link between education and economic development as well as the growth of knowledge-intensive fields. Education is viewed as particularly relevant for emerging industries, which are placing new demands on the nation’s workforce for technical expertise, knowledge about regional markets, financial capital, and a stable workforce.

In future, production will depend on knowledge of information processing and flexibility, skills that change frequently. The establishment and development of knowledge infrastructure should be seen as essential for rural and urban development in the twenty-first century. Just as Nigeria needs a high quality and efficient physical infrastructure such as transportation, electricity, hospitals, clean water and other utility systems, it should have the capacity for future growth and development. The country needs a knowledge infrastructure to grow creative and innovative individuals, groups and organisations that can contribute to sustainable economic development.

The role of higher educational institutions have changed, throughout the world the trend has been for universities to shift from elite to mass systems that offer almost universal access (Mazzarol & Soutar, 2001:33). As a matter of fact, what made the Asian miracle is that these countries invested largely in education, which made them much more successful at adopting the technologies that advanced the countries requirements, than sources of their peers. Growth needs higher rates of investment in physical and human capital, and the newly industrialised countries achieved these high rates (Nelson & Pack, 2003:105).

According to Nelson and Pack (2003), between the 1960s and 1990s, Hong Kong, Korea, Taiwan and Singapore transformed themselves from being technologically backward and poor into relatively modern and affluent economics. Education represents both consumption and investment. Education it is valued for its immediate benefits, and it helps to create income in the future by providing educated workers with the skills and knowledge that enable them to increase their productive capacities and receive higher earnings. This means that the distribution of education influences future income distribution. Thus, the equity implications of educational investment are important.

Education is an important aspect of human capital development; it is an investment to support economic growth and enhance the well-being and standard of living of the people. Rightly considered, it is an investment to acquire knowledge. Basic education impacts on people's literacy and their ability to think adaptably and with time-based discipline. It also brings a higher degree of personal efficiency and ability to innovate. Countries like Japan, South Korea and Germany are known to have made large investments in education. Their continued technological dominance represents the fruits of their investments.

The case of Nigeria which has more than 60 institutions of higher learning is almost totally bad. The problems that bedevil the sector are numerous, ranging from a lack of focus and inadequate funding to poor infrastructure. The persistent industrial strikes have led to unnecessary loss of time. There is no doubt that investment in education is an unavoidable imperative for any country that desires economic growth and development. Firstly, it drives meaningful socio-economic change. Secondly, proper education throws up the requisite skills needed to tackle social problems. It was the realisation of the place of education in human capital development that made the UN make basic universal primary education one of the MDGs. This is to ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a course in primary schooling.

There is no doubt that this goal is born out of the necessity to expand the primary, secondary and tertiary institutions to the level that they will begin to provide skilled manpower for economic and technological development. In 2000, the percentage of students over 15 years old in tertiary institutions in Nigeria was 40 for male and 44 for female, while the students between the age of 15 and 24 years old was 10 for male and 6 for female (World Bank, 2002). Large numbers of children have little access to education with high dropout and repeat rates. High school education also faces serious problems with regard to quality, and requisite public finance. There are few libraries, most of them lacking access to international journals and generally deprived of educational materials, while research facilities remain limited. Furthermore, life expectancy was estimated at 54 years for the period 1999 to 2005. respectively. The adult literacy rate for Nigeria was low at 57 percent from 1990 to 2005 indicating that at least 43 percent of Nigerians are illiterate.

The Nigerian educational system is faced with many challenges, including the problems of providing educational opportunities to disadvantaged minorities such as the nomads (Nomadic education), street children and disabled persons. There is also the problem of low teachers-student ratios, inadequate supply of instructional material and poor general quality of education in Nigeria. This can be attributed to low budgetary allocation and implementation in the educational sector. Table 4.9 below shows the federal allocation to education between 1990-2005. The figures in Table 4.9 show a progressive increase in the absolute amount being

allocated to the educational sector, but the percentage of the federal budget that this represents has not improved. Within the period under consideration 1990-2005, federal annual budget to education had fallen below 15 percent.

Table 4.9 Federal government budget allocation to education between 1990-2005

Year	Amount allocated in Naira (₦) million	% of total budget
1990	2,121.2	5.3
1991	1,557.5	4.1
1992	2,404.4	6.3
1993	7,999.4	7.3
1994	10,283.8	14.9
1995	12,728.0	13.0
1996	15,350.0	10.8
1997	16,840.0	11.5
1998	23,666.1	9.6
1999	27,713.5	11.1
2000	56,568.2	8.7
2001	19,860.0	7.0
2002	9,215.0	7.9
2003	14,680.0	-
2004	9,053.0	-
2005	9,053.0	-

Source: 1) Central Bank of Nigeria Annual Report and Statement of Accounts, 31st December, 2004 p165
2) Central Bank of Nigeria Annual Report and Statement of Accounts, 31st December, 2005 p194

Table 4.10 Primary education in Nigeria, 1990-2005

Year	No. of schools	Total enrolment	No. pupils per teacher	% of female
1990	354,333	13,607,249	36	43.2
1991	35,466	13,776,854	37	43.8
1992	36,610	14,805,937	39	44.1
1993	37,812	15,911,888	41	44.4
1994	38,000	16,831,560	50	44.4
1995	39,677	17,994,082	60	44.0
1996	416,660	19,794,082	48	41.7
1997	43,951	21,161,852	52	43.5
1998	45,621	22,473,886	54	45.2
1999	47,902	23,709,949	52	48.5
2000	48,860.00	24,895,444	54	42.0
2001	49,343.00	27,384,991	56	51.0
2002	47,694.00	29,575,790	55	51.0
2003	52,815.00	26,292,370	53	53.0
2004	65,627.00	28,144,967	52	53.0
2005	59,340.00	26,160,000	40	53.0

Source: 1) Central Bank of Nigeria Annual Report and Statement of Accounts, 31st December 2004 p165
2) Central Bank of Nigeria Annual Report and Statement of Accounts, 31st December, 2005 p194

Table 4.10 further shows the profile of primary education in Nigeria between 1990-2005. It indicates that there has been an increase in the number of primary schools from 35,433 in 1990 to 39,677 in 1995 and 47,902 in 1999. The number of primary schools further increased from 48,860 in 2000 to 65,627.0 in 2004, and decreased to 59,340 in 2005. At the same time, the total enrolment increased from 13,607249 in 1990 to 17,994,082 in 1995 and 23,709,949 in 1999. The enrolment increased further in 2000 from 24,895,444 to 28,144,967 in 2004. It also decreased to 26,160,000 in 2005. However, it is worth noting that while the number of enrolment was increasing, the teacher-pupil ratio did not increase as well. This means that the pupils may not receive adequate attention from the teachers, who are burdened with many pupils contending for attention. There is also the possibility of the pupils' not performing well due to inadequate attention from the few available teachers.

Nevertheless, it is also important to note that the percentage of female pupils enrolling within the period under consideration have been increasing progressively from 43.2% in 1990 to 44% in 1995 and 48.5% in 1999. Interestingly, the number of female pupils' enrolment increased in 2001 from 51% to 53% in 2004 and 2005. Though this indicates a positive outlook of bridging the gap between male and female pupils in primary education by 2015. It is instructive to observe that, apart from the physical increase in the number of primary schools enrolment, the number of teachers need to be increased, implying both improvements in the quality of teaching and training, and of instructional materials made available to the schools. The general picture portrayed in Table 4.11 above of secondary education in Nigeria between 1990-2005, was not very impressive, compared with that of primary education. Between 1990 and 1995 there was no significant increase in the number of institutions. From 1996 to 2005, there was a proliferation in the number of secondary schools in Nigeria. Though the teacher-student ratio did not increase proportionally, as it was for primary education, but the number of enrolments showed a progressive increase.

However, unlike in primary education, the percentage of female students in secondary education had shown an unstable improvement over the same period. This dismal situation can be attributed to factors like high rate of dropout in schools, possibly because of the high cost of education at secondary school level. With increasing poverty among many Nigerian households parents are forced to withdraw their female children from school. Female children at educational

age are also often forced into early marriage by their parents especially in the rural agricultural areas. Some female students withdraw from school to join their parents in petty trading (child labour). According to Atsenuwa (2003:61) the low enrolment of girls in schools is a reflection of the sexual division of labour in most homes in Nigeria. Atsenuwa (2003:61-62) further stresses that overall, girls labour is perceived as more essential than boys' in domestic chores, farming and petty trading.

Table 4.11 Secondary education in Nigeria, 1990-2005

Year	No, of schools	Total enrolment	No. students per teacher	% of female
1990	6,046	2,949,225	21	43.0
1991	5,905	3,124,171	22	41.0
1992	6,009	3,600,620	25	45.0
1993	6,162	4,150,917	N/A	48.6
1994	6,300	4,500,000	N/A	48.6
1995	6,452	5,084,546	40	43.0
1996	9,111	5,389,619	37	39.2
1997	7,311	5,578,255	39	41.9
1998	7,801	5,795,807	40	46.2
1999	8,113	6,056,618	38	45.0
2000	8,275	6,359,449	46	46.0
2001	8,275	6,995,394	47	47.0
2002	8,351	7,485,072	48	48.0
2003	11,918	7,091,376	43	43.0
2004	13,333	6,745,186	43	43.0
2005	12,610	6,534,000	27	44.0

Source: 1) Central Bank of Nigeria Annual Report and Statement of Accounts, 31st December 2004 p165
2) Central Bank of Nigeria Annual Report and Statement of Accounts, 31st December, 2005 p194
Note: N/A = not available

In agrarian societies, like Nigeria, where the female role is defined largely in terms of home, parents are likely to have significant incentives to keep their daughters at home and out of school. This means that in agricultural societies girls are much less likely to be enrolled in school at any point in time thereby achieving lower levels of education than boys (Atsenuwa, 2003). This also implies that parental characteristics are important determinants of education for both men and women. Boys are usually given higher parental encouragement for education than girls. In addition the education process includes factors particularly relevant to women's adult family roles, such as dating frequently, age at first marriage, and age at first birth, which will have significant effects on educational outcomes for females more so than for the males.

The gender differences in education may arise because of gender differentiation in adult roles and the emphasis on family-related roles for women (Atsenuwa, 2003). On a general note, concerted efforts should be made by the government to reduce those constrains that encourage high rates of secondary school dropout by female students. Strong educational foundation is needed at primary and secondary school levels. It is, however, important that both the physical and knowledge infrastructure be adequately provided for by both the private and public sectors.

The spread of mass education constitutes a fundamental social transformation and a watershed in the attainment process, because it opens up previously unavailable status mobility routes (Beutel & Axinn, 2002:109). Mass education as Beutel and Axinn (2002) suggest, is a strong instrument for social and economic transformation in any society. Specifically, the dimensions of social change are likely to have an important impact on educational attainment in the following ways:

a) Expansion of academic institutions: the proliferation of schools will most likely promote enrolment and attainment as schools become increasingly available, the cost of sending children to school will decline, and parents will find it easier to send their children to school. In the same manner, the nearer the schools are to the homes, the more common school attendance is likely to become.
b) Availability of wage labour employment opportunities is also likely to stimulate greater educational attainment, because school enrolment allows individuals to invest in their human capital in order to increase their chances of obtaining a wage labour job and mobility among jobs. This is particularly true in Nigeria, where the British system of formal education adopted throughout the country gives the impetus for individuals to think of getting white-collar jobs. As a result, as wage labour employment opportunities increase, motivation to enrol in schools is expected to increase as a means of securing these jobs. Likewise, we expect motivation to educate children to increase with longer exposure to wage labour jobs nearby.
c) The proliferation of industries and markets is likely to increase school enrolment and educational attainment, although this may be effected indirectly. As industrialisation and markets spread throughout rural areas, goods and services become more widely available, but only to those that have the money to purchase the goods and services. In effect, Beutel & Axinn (2002) believe that the expansion of industries and markets is

expected to increase the demand for money, which may encourage individuals to pursue wage labour jobs and higher wages among the jobs, and the desire to obtain higher paying jobs is expected to motivate educational attainment.

Provision of physical infrastructure such as transportation will facilitate access to schools, wage labour employment opportunities, and markets. By increasing access to these other social institutions, each of which is expected to drive and motivate educational attainment by itself. An improved transportation infrastructure is likely to increase school enrolment especially in urban areas. Nigeria's major cities experience such bad traffic congestion that people and motorists spend hours on the road before they can reach their various destinations within the cities. The chaotic transport and traffic situation is adduced to poor road and rail network transportation systems. This will act as a disincentive to educational enrolment and attainment especially within and just outside the cities (Beutel & Axinn, 2002).

Attention should be concentrated on providing additional funds for the education sector. Many Nigerian children have no access to basic education, and the majority of the nearly 19 million that are lucky enough to enter primary schools, (both public and private), are given sub-standard education (UNICEF, 1999). According to Hugo (2003) "he who opens a school door, closes a prison". In the light of this, the government should stand tall and face the challenges of encouraging every Nigerian child to complete a basic primary school education by 2015.

The following section discusses the crucial role of an efficient health care service in achieving a healthy population and labour force. This is needed to promote increased productivity and sustainable development in Nigeria.

4.5.2 The importance of health care service as growth support sector for attaining the MDGs in Nigeria

No matter where a health care discussion begins, the conversation soon turns to issues of affordability. Employers and employees complain about high premiums, patients and providers note high treatment costs, and policy-makers lament high and rising spending. Each perspective presents a different aspect of the same problem (Henderson, 2002:2). The importance of good health across all categories of Nigeria's population cannot be

overemphasised. Dasgupta (2004:114) says that improved health status implies fewer working days lost due to ill health and fewer resources spent on health care. Consequently, economic productivity increases. Between the 1950s and 1970s, health indicators improved substantially in many African countries as they invested heavily in public health services, and their governments enthusiastically endorsed the general international consensus on the relationship between health development and poverty that culminated in the acceptance of the primary poverty healthcare strategy (Bloom, Belshaw & Livingstone, 2002:426).

However, the concern for health care services began to decline because of economic problems arising from declining foreign revenue and the structural adjustment programmes embarked on by these countries. This focused market solution in 1980s and led to drastic reduction in public expenditure. This invariably affected public expenditure on public health care delivery. For instance, Table 4.12 illustrates Nigeria's federal allocation to health (1990-2005).

Table 4.12 Federal government of Nigeria national budget allocation to the health sector, 1990-2005

Year	Amount ("₦" million)	% of annual federal budget
1990	904.9	2.5
1991	1,091.8	1.4
1992	1,051.1	2.0
1993	2,652.2	1.5
1994	3,042.3	4.4
1995	5,060.9	5.2
1996	4,838.0	3.4
1997	7,343.0	5.0
1998	11,291.96	4.6
1999	13,727.30	4.5
2000	14,806.43	2.7
2001	20,128.0	3.9
2002	12,608.0	4.7
2003	6,431.0	4.7
2004	18,207.0	4.7
2005	18,207.0	4.7

Source: 1) Central Bank of Nigeria Annual Report and Statement of Accounts, 31st December 2004 p165
2) Central Bank of Nigeria Annual Report and Statement of Accounts, 31st December, 2005 p194

The total government budget to the health sector between 1990 and 2005, as shown in Table 4.12, was under six percent. However, since health plays an important role in achieving growth and development in any economy, the government needs to prioritise its programmes in favour of investing more in grass roots primary health care systems. Evidence has shown that the rich (politicians) prefer private hospitals overseas when they are sick for quick medical attention,

diagnosis and medication even at the highest possible cost, while the poor generally go to public hospitals to obtain health care services.

However, it has often been truly alleged that public hospitals are poorly run and serve as mere consulting centres due to lack of drugs and equipment. Most public hospitals do not experience three hours of constant electricity supply in Nigeria. Low morale and poor dedication of medical personnel due to low remunerations and other incentives are also problems in the health care sector. With about ₦100 billion of debt relief released to the country, money is available to refurbish and equip all the public hospitals, including the famous University Teaching Hospitals, and to build additional clinics at primary rural community level to tackle the escalating rate of the HIV/AIDS pandemic in Nigeria. Nigeria is ranked third in the world in terms of HIV/AIDS prevalence rates (UN Report, 2005). The World Bank (2006:293) states that the life expectancy at birth in the country is now 44 years and 45 years for male and female respectively.

4.6 Summary of the main findings and conclusions

In this chapter, attention was concentrated on the analysis of the relevance of the growth sectors namely agriculture, manufacturing and mining (solid minerals); and the growth support sectors, namely education and health care delivery in Nigeria. The analysis shows that the agricultural, manufacturing and mining and quarrying sectors have potentials for creating more jobs and income, reducing poverty and increasing productivity for the sustainable economic development of Nigeria. There is a strong linkage between the three important growth sectors in Nigeria. Agriculture provides strategic raw materials for the manufacturing sector and manufacturing in turn supplies farming tools and equipments and inputs such as fertiliser to agriculture. Furthermore, a dynamic manufacturing sector is expected to facilitate the transformation of the agricultural sector in terms of building, designing or fabricating suitable, cost-effective machinery and technology to increase production, and also absorb and train extra labour from agriculture.

The mining sector can complement agriculture in rural economic transformation since its activities are rural-based. Both sectors are poverty-reduction driven. Therefore, poverty alleviation policy measures of encouraging proliferation of well-organised small-scale mining operation could easily be incorporated in the mining and agricultural sectors. Care should also

be taken by the government to protect the environment and the health and safety of the people engaged in these sectors, by minimising environmental hazards such as erosion and pollution. Farmers should be encouraged not to switch their labour to mining activities. There is a strong need for Nigeria to deregulate its policy strategy on mining as many countries in the continent have done. This will encourage the national, state and local governments to all work together in harnessing the growth and development potentials of the growth sectors.

Meanwhile, the education and health care sectors play an important role in providing the much-needed human capital and technical know-how. The interaction of these sectors could bring about rapid social and economic transformation required to attain sustainable economic development in Nigeria. In each of the sectors, great potential and investment are required both from internal and external sources to boost gross output growth. In the next chapter, the empirical and analytical frameworks of the study are discussed.

CHAPTER FIVE

THEORETICAL AND ANALYTICAL FRAMEWORK

5.1 Introduction

The literature provides a rich catalogue of models that deal with economic development policy and planning in developing countries. Of the models, the most widely used models are the econometric methodology and computable partial and general equilibrium analysis. However, building a model for a developing economic environment poses serious problems due to the dearth of relevant data. According to Nwaobi (2004:29), models are used to unravel complex real-world situations of interest.

The ongoing discussion of the ways to attain the MDGs has pinpointed a lack of financial resources as a major problem. In consequence, a series of global conferences have been convened to discuss partnering as a way to finance development for the third world countries. According to the UN (2002e:23), the links between financing development, measuring development progress, helping guide development priorities and encouraging active involvement of all relevant stakeholders, including the civil society organisations and the private sector, are widely recognised. In Nigeria, such discussions have clearly shown that the country needs to look inward (domestically) and outward (internationally) to find resources that can be employed to overcome the financial limitations and to generate the type of growth required to achieve the high level of development in Nigeria needed to reach the MDGs.

The UN has urged developed countries to make concrete efforts towards supporting and financing growth targets by giving 0.7 percent of their GNP as ODA to developing countries, and 0.15 to 0.20 percent of their GNP to least developed economies. The UN (2002f:8) further urges domestic banking systems and institutional arrangements to address the financial development of developing countries. Domestic insurance companies, debt and equity market institutions are encouraged to mobilise and channel savings to foster productive investment.

However, while financial resources are of paramount importance, the right kind of policies and sectors are also necessary to accelerate growth at the rapid rate required to achieve a high level of development to attain the MDGs in Nigeria. Therefore, the core objective of this chapter is to identify and analyse empirically the sectors most suited to accelerating growth, which could

serve as vehicles for reaching the development goals. These sectors must also have the capability to improve household income, by strengthening their labour power, return on labour and most importantly, the accessibility by the poor to assets or social capital.

This chapter argues that the sectors that have the greatest potential to improve the labour power, labour income and access to social capital and to address poverty are the agriculture, manufacturing and the solid mineral mining. In his 2006 budget speech, President Obasanjo (2006:11) said the national budget must focus on diversifying the Nigerian economy and the priority growth sectors are agriculture, manufacturing and the solid mineral exploration. Similarly, the special assistant to the country's presidency, Armina Abrahim (2005:4), stressed that development of agriculture and environment, power and steel, womens affairs, water, health, education and urban development will help Nigeria to attain the MDGs.

Apparently, emphasis on these growth sectors offers leeway for poverty reduction in Nigeria, because the poor depend on their labour capability for their livelihood, whether as wage-labour or through self-employment. It is reasonable to link the labour capability of the poor to the availability of productive employment. This in turn depends largely on the income earned by the poor. Similarly, access to social capital and other physical and human assets could also determine the returns of the poor on their labour. In sum, measures to reduce poverty should be seen in the context of improving the return on the labour of the poor through increasing their income and their access to social, physical and human capital assets. It should also be mentioned that the interplay of market forces in terms of costs of inputs and output-product prices expressed in the form of terms of trade could play a significant role in poverty reduction.

Therefore, the activity of the growth sectors, namely agriculture, manufacturing and the solid mineral mining, could to an appreciable extent depend on the production potential and expansion of the economy. The extent to which the economy expands will also enhance the employment potential of the growth sectors. Dynamism in the economy will encourage the movement of labour capabilities from one sector to another. For example, the manufacturing sector could absorb skilled labour from the agriculture and mining sectors.
The cost of domestically produced goods, foreign imported capital goods, capital and imported consumer-produced finished goods can simply be captured in the form of terms of trade.

5.2 The concept of cointegration and error-correction (ECM) econometrics methodology.

During the last few years, considerable progress has been made in developing new econometric methodologies to make use of the two-step approaches especially the concepts of cointegration and error-correction mechanism (Bond and Harrison, 1992:315). As explained by Bond and Harrison (1992), the concepts of cointegration and error-correction mechanism (ECM) are introduced to avoid spurious regressions. The estimation of long-run models containing non-stationary variables may lead to serious problems and predominantly spurious results (Lauridsen, 1998:1). Thus, the concept of cointegration and ECM have evolved to suggest an alternative methodology to the time series analysis while taking account of many of the problems that can give rise to unstable series. The concept of cointegration and ECM were initially introduced independently.

The theory of cointegration was developed by Granger (1983) and Granger & Weiss (1983). It postulates that if two variables x and y are *I*(1), therefore any combination of the two variables will also be *I*(1). There may exist a singularity, for instance 'λ', such that y-λx results to *I*(O). In that instance, such singularity x and y are said to be cointegrated.

The ECM was introduced by Phillip (1954) and first used in economics by Sargan (1964), and since the work of Davidson et al. (1978), error-correction models have played an important role in dynamic economic modelling (Bond and Harrison, 1992:317). In the application of the cointegration and ECM model, the dynamics of both short-run (changes) and long-run (levels) adjustment processes are included. Bond and Harrison (1992:317) further explain that the model takes account of the dynamic adjustments to steady-state targets by including in the short-term dynamics a measure of how much out of equilibrium the variables were at the start of the period.

Engle & Granger (1987) proved that cointegrated series can be represented by an ECM model, and a two step estimation procedure for ECM models was developed. Practically, the first stage of the procedure is to perform a levels estimation which allows for the hypothesis of cointegration to be tested. A technical analysis of the methods is shown by Park & Phillip (1988,

1989). However, three tests have become standard in the literature: the Cointegration Regression Durbin-Watson test, the Dickey-Fuller (DF) test and the Augmented Dickey-Fuller (ADF) test

The DF and ADF procedures are based on the standard 't' test. DF is comparable to the standard 't' test of the hypothesis that the parameter α equals zero in the model:

$$\Delta e = \alpha e_{t-1} + v_t$$

The null hypothesis that α =0 is again comparable to the hypothesis that the regression is not cointegrating. Thus, if the regression is cointegrating then α will be negatively signed and significantly from zero.

The ADF is similar but the 't' statistic on α is calculated from the regression:

$$\Delta e_t = \alpha e_{t-1} + \Sigma_i = {}_1\gamma_i \Delta e_{t-i} + v_t$$

This test allows for more dynamics than the DF and the number of, q, of lags can be varied. Howver, if the ADF test proves inconclusive, the graphical representation of the data in levels and first differenced may be relied upon (Koekemoer, 1999).

Engle-Yoo (1991) estimation procedure provides an extension (third step) on the Engle-Granger estimation. The third step provides the dynamics through which the parameter estimates of the first stage (long-run) estimation and a set of standard errors allow for the calculation of new adjusted coefficients and standard 't' statistics. In essence, the third step procedure helps to recovery all long-run cointegration relationship present in the data with the short-run properties simultaneously to adjust for a set of new coefficients and the t-statistics. The two-step procedure introduced by the Engle-Granger (1987) and Engle-Yoo (1991) have come to represent a standardised estimation method (see Du Toit, 1999; and Koekemoer, 1999).

As emphasised in chapter one of this study, an econometric multivariate co-integration methodology as found in Engle and Yoo's (1991) three-step technique is a relevant tool for analysing and addressing a wide range of economic development issues in Nigeria. The main goal for adopting the Engle-Yoo econometric multivariate cointegration estimation model in this study is to simulate policy-oriented macroeconomic development scenarios through the

analysis of the relationships between domestic and foreign financial resources and the domestic production of Nigeria's growth sectors. Essentially, the emphasis is on the impact of increasing the productive output of the agricultural, manufacturing and mineral mining sectors using domestic financial and infrastructural and foreign financial resources. Also, improving and enhancing the productive capacity of the real sectors requires large investment in education and health. The financial sustainability of the agricultural, manufacturing and mining sectors is of vital importance. The development of the growth sectors can impact significantly on the standard of living of the vast majority of their people. Through employment creation, income generation, skills acquisition in science and technology training and capacity building can facilitate rapid growth and poverty reduction in Nigeria. Mistry (2002:13) stresses the importance of domestic resource mobilisation in financing development and the responsibility that developing country governments have in maximising the availability of such resources.

The government's expenditure and other agricultural development efforts supported by commercial banks' aggregate credits to farmers constitute the main domestic financing windows for agriculture, manufacturing and mineral mining in Nigeria. Mistry (2002) stresses the need for financial systems that intermediate domestic resources efficiently. The role of commercial banks in mobilising financial resources and intermediating savings or idle funds into capital investment for the productive sectors of Nigeria is compatible with Mistry's (2002) assertion. This is because the commercial banks have large networks of branches, and can intermediate domestic financial resources efficiently. Similarly, FDI into the growth sectors will offer a complementarily enhancement of the economy's output performance.

The central objective of adopting the Engle-Yoo econometric multivariate cointegration estimation model in this study is to simulate policy-oriented macroeconomic development scenarios by analysing the relationships between domestic and foreign financial resources and the domestic production of Nigeria's growth sectors. Essentially, the emphasis is on the impact of increasing the productive output of the agricultural, manufacturing and mineral mining sectors using domestic financial, infrastructural and foreign financial resources.

A review of the empirical works involving the analysis of multivariate econometric cointegration error correction methodology, especially in the context of the agricultural, manufacturing and

mining and quarrying sectors in Nigeria, show that not many studies have been done in this area, compared with many other developing countries. These rare studies that do address economic development issues mostly use traditional econometric analysis. These studies include the pioneering work of Liedholm (1966) on manufacturing industries, in which he estimates production functions of the Cobb-Douglass type for the period 1962-1963 for selected industries within the Eastern provinces of Nigeria. Liedholm derives cross-sectional data of individual firms against industrial aggregates. Liedholm believed that the study made some important contributions to the analysis of the structure of the Nigerian industry. It also highlights the usefulness of the estimated coefficients for planning purposes. The study suggests that increases in output can be expected from given increases in capital and labour inputs.

Oyelabi (1971:52) also estimates and tests factors substitution in Nigeria's manufacturing sector. He finds that the elasticity of substitution in Nigeria's manufacturing industries varies from industry to industry. Osakwe (1976) fits a Cobb-Douglas production function to time series observations of ten industries in the manufacturing sector of Nigeria. He finds that labour productivity exceeds that of capital by more than double. His coefficient of capital, however, is negatively signed and statistically insignificant.

In their study, Odama and Kazi (1982) estimate production functions exhibiting constant elasticity of substitution to the manufacturing industry in Nigeria, based on an industrial survey for the years 1962 to 1975. They find that labour and capital are both economic and politically significant. Their study shows that the level of substitution in the Nigerian industries is very low.

Ukpang and Anusionwu (1986:47) test for the contribution of expatriate labour in relation to Nigerian labour in the Nigerian manufacturing using a traditional econometric approach. Their result shows that Nigerian labour contributes more to aggregate production than does the expatriate labour. They also find a negative contribution of capital and Nigerian professionals to gross output in some industries in Nigeria.

Growth theory provides substantial guidance for specifying supply-side agricultural potential output, which is primarily determined by measurable input factors, as well as total factor productivity (TFP). This methodology is to a large extent consistent with the theory of

production function that underlies specification of the supply-side of agricultural potential output (see Agu, 1985:183; Doll & Orazem, 1978:12; Pauly, 2000:3). However, the unavailability of most cointegrating factor inputs for the specification of the production function results in the incorporation of variables such as commercial banks loans, agricultural credit guarantee scheme, imported machinery and equipment which lie outside the strict inputs of production function. However, most of the variables used in this methodology are not strictly inputs in the production function, they strongly influence the domestic output production and development in Nigeria.

5. 3 Structure of the model

Three behavioural equations defined in the form of a neoclassical supply-side model for the Nigerian economy are estimated individually. Of the three equations, one is specified for the agricultural sector and one for the manufacturing and the mining and quarrying sectors respectively. Growth theory provides substantial guidance for specifying supply side agricultural potential output, which will be primarily determined by measurable input factors, as well as total factor productivity (TFP). This model is to a large extent consistent with the theory of production function that underlies specification of the supply side of agricultural potential output (Doll & Orazem, 1978:12; Pauly, 2000:3). Pauly (2000:3) asserts that, in most developing economies, agricultural output is best modelled as supply-determined. The value-added in agriculture is presented as:

$$X^{\mathbf{AGR}}/\text{Arable Land} = A_0 \quad K^a \quad \text{Rainfall}^b \quad \text{Fertiliser}^c \quad \mathbf{e}^{\mathbf{TFG\text{-}AGR}}$$

Thus, potential output is determined by fully utilised inputs of measurable factors of production: capital (K), average annual rainfall and fertiliser, as well as by the total factor productivity of agriculture ($e^{TFG\text{-}AGR}$). Pauly (2000:3), however, explains that data limitations may well lead to the estimation and introduction of non-constant returns to scale through endogenous modelling of TFP. Most of the cointegrating factor inputs necessary for specifying the production function are not easily available, which means that variables such as commercial bank loans and advances, agricultural guarantee scheme, modern farming machinery and equipment have to be incorporated into the function, though strictly speaking, they fall outside the inputs of the production function. These variables play significant roles

that strongly influence the domestic output production and development in Nigeria and so are included for that purpose in this study.

5.4 Model for agriculture

Based on the general specifications for supply-side agricultural potential output for most developing economies, as given in Pauly (2000:3), a reasonably flexible representation is given in equation 1.

$$Agr = a_0 + \beta_1 lnAgcap + \beta_2 lnlabor + \beta_3 lnFert + \beta_4 lnRi + \beta_5 lnAcgs + Dum86sap + e_i \quad \ldots\ldots(1)$$

Note: a_0, β_1, β_2, β_3, β_4 and $\beta_5 > 0$

Where:

Agr = agricultural GDP

Agcap = public capital expenditure

Labor = estimated labour in agriculture

Fert = fertiliser used in the sector

Ri = interest rates

Acgs = agricultural credit guarantee scheme

Dum86sap = the policy impact of the structural adjustment programme launched in 1986

a_0, β_1, β_2, β_3, β_4 and β_5 = coefficients

ln=logarithm

e_i =error terms

This explains that Nigeria's potential agricultural output is determined by the following measurable input factors: labour force (Labor), public capital expenditure for agriculture (agcap), fertiliser utilised (Fert), interest rates to the sector (Ri), the banks' aggregate loans and advances (Acgs) and the policy impact of the SAP on the agricultural sector (dum86sap).

5. 5 Basic hypotheses, assumptions and expectations for each variable in the cointegration agricultural model

Agriculture plays a dominant role in the Nigerian economy, as it employs about 70 percent of the total workforce, and serves as a source of income to farmers, yields foreign exchange, provides food for the growing population (now at over 130 million) and produces raw materials for the industrial sector. Therefore, if agriculture is adequately financed with domestic and foreign resources, this growth sector could provide enough food and income for the vast majority of the country's population engaged in it. Poverty and extreme hunger will thus be reduced.

The domestic gross product of the agricultural sector (Agr) in Nigeria is hypothesised as jointly and severally determined by changes in labour force (Labor); public capital expenditure for agriculture (Agcap); fertiliser (Fert); interest rates to the sector (Ri), agricultural credit guarantee scheme (Acgs); the impact of the structural adjustment programme on agricultural production (dum86sap).

The expected roles of these variables in increasing the agricultural production in Nigeria will guide the assessment of each variable included in the models. The expectations include the following:

a) Labour force (Labor) in the agricultural sector in Nigeria is expected to have a positive effect on the productivity of the sector. Agriculture provides gainful employment to large labour force in developing countries (World Bank 2000:187-188; Norton, 2004:4; Niang, 2006:88; Mortimore, 1998:4) others evidences include (Lenihan, 2005; Meier & Rauch, 2005:393; Mellor & Johnston, 1984). Thus, the coefficient of labour in the model is expected to be positive.

b) Public capital expenditure for the agricultural sector (Agcap), is expected to service as positive incentive for the country's predominantly rural agriculture, and could stimulate growth, production and poverty reduction. According to Schwartz (2000:151-155), Israel's sponsored agricultural settlement projects in Zambia, Nigeria and Nepal resulted in Zambia and Nigeria achieving high agricultural productivity due to improved social services to the farmers. Schwartz

(2000) explains that Nigeria increased its agricultural production through this project, though the high growth and productivity declined due to the outbreak of the Nigerian civil war in the early 1970s. This evidence suggests the importance of the capital expenditure for the agricultural sector. The coefficient is expected to be positively signed.

c) The use of fertiliser provides the soil with nutrients and encourages high crop yields (Nelson, 2001:15; Mortimore, 1998:43). Therefore, the coefficient of fertiliser is expected to be positively signed in the estimation.

d) The coefficient of interest rates is expected to be negatively signed in the model. The expected inverse relationship between the interest rate and agricultural output is supported in literature. The influential work of McKinnon (1973) and Shaw (1973), financial liberalization protagonists, asserts that low or negative real interest rates discourage high saving rate and would misallocate capital to unproductive sectors. The achievement of high, positive real interest rate would stimulate savings and volume of credit available to the productive investment (Demetriades and Hussein, 1996). Demetriades and Devereux (1992) study on 63 developing countries over the period 1961-1990 find higher real interest rates on investment is adverse. It is expected that interest rates to the agricultural sectors will show a negative relationship with the output of the sector since high and positive interest rates to farmers is expected to discourage more investment in the agricultural sector.

e) Agricultural credit guarantee scheme (Acgs) is expected make a positive significant contribution to agricultural production. The general contention is that low levels of savings in developing countries contribute significantly to the depreciable level of investible funds. The federal government of Nigeria, through the central bank with some selected commercial banks initiated a credit scheme to support farmers with credit to enable them boost production. It is against this background that coefficient (Acgs) is expected to have a positive impact on agricultural production.

f) Dum86sap represents the policy impact of the structural adjustment programme on the agricultural production. The SAP reforms aims at enhancing economic efficiency in the use and allocation of economic resources (Mensah, 2006:4). According to the CBN (2000:38) the output

of the agricultural sector increased sharply due to the SAP measures. Thus, the dum86sap is expected to be positively related with the agricultural GDP.

In the next section, the model for manufacturing is presented and its basic assumptions and expectations discussed.

5.6 Model for the manufacturing sector

The specification of the manufacturing value-added potential output is based on Pauly's (2000:3) model for developing countries. Pauly (2000:3) states that non-agricultural modelling for developing economies should be determined by fully utilised inputs of certain measurable factors of production (such as capital (K) and labour (L), energy, imported raw materials), as well as by total factor productivity. As for agriculture, in the manufacturing sector data limitations can dictate a more reasonably flexible form of specification. Potential output is given as:

$$Y_t = e\beta_{0t}\ K\beta_{1t}\ L\beta_{2t}$$

Therefore, the value-added potential output for manufacturing will be determined by measurable input factors represented as:

$$Manuf = a_0 + \beta_1 lnlabor + X_2 lnfdim + \beta_3 lnrexch + dum86sap + ei \ldots\ldots\ldots\ldots..(2)$$

Note: β_1, X_2 and $\beta_3 > 0$

Where:

Manuf = manufacturing value-added gross output

Manlabor = estimated labour in manufacturing

Fdim = foreign direct investment in manufacturing

Exch = Naira/dollar exchange rate

Dum86sap = the policy impact of the structural adjustment programme launched in 1986

β_1, X_2, =coefficients

ei =error terms

Data coverage 1970-2005

5.7 Basic hypotheses, assumptions and expectations for each variable in the cointegration manufacturing model

The following are the basic underlying assumptions and expectations for the variables included in the manufacturing model, which will be estimated in chapter six of this study:

a) Labour force consists of the quality of educated and well-trained skilled labour that can bring about innovation and technological invention in the manufacturing sector (Okore, 1985:126). Relevant skills include for consumer-goods branding, marketing and advertising. Because of the importance of labour in enhancing the productivity of the manufacturing sector, the coefficient is expected to be positively signed.

b) FDI plays an important role in economic development because it helps to make possible superior technology, huge capital outlays and superior production techniques, management, marketing, distribution skills and technical know-how (Mugabe, 2005:75). Thus, the coefficient for FDI (Fdim) in Nigeria is expected to be positively related with the gross output of the manufacturing sector.

c) The manufacturing sector imports most of its raw materials for production in the country. Consequent upon this, the manufacturers are often affected by changes in exchange rate Naira/dollar movement. Suffice to stress that Naira/dollar appreciation will lead to lower cost in raw materials imports while depreciation in the exchange rates translates to high cost of raw materials imports. Thus, the coefficient of the Naira/dollar exchange rate is expected to be positively signed.

d) Dum86sap represents the policy impact of the structural adjustment programme launched in 1986. The SAP reforms aims at enhancing economic efficiency in the use and allocation of economic resources (Mensah, 2006:4). The SAP programmes are essentially market driven. It is expected to encourage private sector led-businesses and production. In the light of this, the SAP is expected to impact positively on manufacturing activities in Nigeria. Thus, coefficient of Dum86sap should be positively signed.

e) Infrastructure in the model is expected to have a strong and direct relationship with value-added manufacturing gross production. Pauly (2000:3) states that productivity enhancement factors like infrastructure can influence the productivity possibility of a growth sector. Infrastructural investment in and outside the industrial estates in Nigeria is expected to play a significant role in attracting more manufacturing firms due to the reduction in the cost of doing business and greater availability of transports facilities. Uninterrupted communication systems (both electronic and parcels) will have a similar effect. The coefficient for infrastructure (Infrast) in the manufacturing model is expected to be positively signed.

5. 8 Model for the mining and quarrying sector

In this section, the model for the mining and quarrying (solid minerals) sector and the underlying basic assumptions and expectations for the variables included in its estimation are discussed. It is important to emphasise that the primary goal of this mining and quarrying cointegration estimation model is to assess the impact of public policy and the implications of mobilising financial resources towards stimulating investment growth in the solid mineral resources sector in Nigeria. The mining sector is one of the backbones of most economies on the African continent (Hilson, 2003). It is imperative to mobilise domestic and foreign financial resources to stimulate investment at small-medium and large-scale enterprises to boost the productive capacity of the mining sector. The deregulation of Nigeria's mining sector by the government, following the example of most other African countries, will no doubt create significant economic development opportunities and bring employment creation, increased income to household artisan miners, expansion of revenue sources and foreign exchange for development and poverty reduction in the economy. The model for mining is therefore presented in this section.

$$MINQUA = \beta_0 + \beta_1 lnMINCAP + \beta_2 lnLABOR + DUM80S + Dum86sap + ei \quad \ldots\ldots\ldots(3)$$

Note: β_1, β_2, >0; dum80s and dum86sap <0.

Where:

Minqua = real value-added gross output of mining and quarrying

Labor = real labour in the sector

Mincap = real public capital expenditure to the mining and quarrying sector

Dum80s = the impact of government policies on the mining and quarrying

Dum86sap = the policy impact of the structural adjustment programme launched in 1986

Note: $\beta_1, \beta_2,$ = coefficients

5.9 Hypotheses and basic expectations for each of the variables included in the mining and quarrying (solid minerals) model

a) Labour force (Labor) in the mining sector includes small-scale artisan miners and medium and large-scale mining companies (Hilson, 2003). Given the economic and social opportunities available for Nigerians residing around the various mining and quarrying communities, it is expected that if their labour earns better income this will enhance their standard of living and significantly uplift their social and economic status (Odesola, 2001:48). In essence, the coefficient of labour in the mining and quarrying sector is expected to play a positive significant role in poverty reduction in Nigeria.

b) Public capital expenditure (Mincap) provides the needed capital outlay to mine the solid minerals in Nigeria because the mines are placed under direct control of the national government. The mincap is expected to be positively signed in the mining and quarrying model

c) Dum80s which represent the effects of changes in government past policy on the mining sector, is expected to be negatively signed. The expectation is that the past government policies have impacted negatively on the development of the mining and quarrying sector. Onah (2004) believes that government control and past policies have not induced the expected performance of the sector.

5.10 Summary of the main findings and conclusions

In this chapter, attention was primarily focused on developing models for the growth sectors in Nigeria. Overall, the models suggest that Nigeria needs to accelerate the pace of economic growth and development in its agricultural, manufacturing and mining and quarrying sectors to be able to attain the international development target of reducing poverty by half by 2015. It is

against this background that the UN through various international forums has mandated all developing countries to look inward and ensure efficient financial intermediation to mobilise resources to finance development and growth in their own countries (UN, 2002). This wake-up call was needed, since Nigeria and other developing countries are endowed with rich renewable and non-renewable resources that can be harnessed in partnership with foreign investors and development agencies, and used to enable these countries to attain global development goals.

In response to the need to improve and increase the output performance of the agricultural, manufacturing and mining and quarrying sectors in Nigeria, a set of factor inputs in the production function are incorporated in the estimation of the cointegration models. Additional input variable not strictly factor of production such as agricultural credit guarantee scheme is included. The inclusion of this input variable is necessary because it plays an influential role in the economic development of Nigeria. A total of three (3) cointegration equations were formulated for estimation. The expected signs and behaviour of the variable inputs in the equations were also discussed.

In chapter six, the results of the multivariate cointegration econometric estimated models for agriculture, manufacturing and mining and quarrying (solid minerals) in Nigeria will be presented and the policy implications of these results discussed.

CHAPTER SIX

EMPIRICAL ANALYSIS AND PRESENTATION OF ESTIMATED ECONOMETRIC MODELS

6.1 Introduction

In this chapter, the variables included in the estimated models for agriculture, manufacturing and mining and quarrying are described and analysed. The estimated results of the model for agriculture are presented first, followed with the models for the manufacturing and mining and quarrying respectively. The results are analysed and their implications discussed.

6.2 The model for the agricultural sector

The data (sources, derivation and univariate characteristics) utilised in both the long-run cointegration and short-run dynamics of the model is presented in appendix1. Appendix 2 represents the stochastic functions. On the other hand, appendix 3 presents the graphical illustration of the data series. Appendices 4 and 5 are the Augmented Dickey-Fuller tests for non-stationarity levels and first differences

Table 6.1 highlights data included in Model for agriculture. The data described in Table 6.1 assesses the policy impact of the public capital expenditure, labour, fertiliser, interest rates, the agricultural credit guarantee scheme and the dummy representing the structural adjustment programme (SAP) on agricultural production and development in Nigeria.

Table 6.1 Data incorporated in the estimated agricultural model

AGR	agricultural GDP at 1984 constant factor cost
AGCAP	public capital expenditure for the agricultural sector
FERT	fertiliser
RI	interest rates for the agricultural sector
AGLABOR	estimated labour engaged in agriculture
ACGS	agricultural credit guarantee scheme
DUM86SAP	impact of the structural adjustment programme on the agricultural sector (SAP launched in 1986)
LN	natural logarithms
Data coverage	1970-2005

6.2.1 Estimation results of the long-run cointegration equation

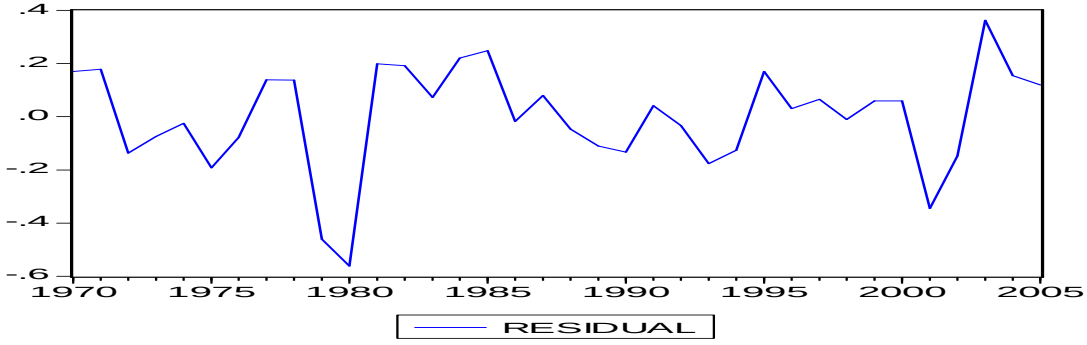
The first step of the Engle-Yoo (1991) three-step estimation technique was applied to test whether the set of variables specified in the empirical model is cointegrated. In essence, it shows whether the combination of variables incorporated in the estimation is consistent with the long-run equilibrium relationship. The cointegration results are reported in Table 6.2

Table 6.2 Estimated results of the Long-run cointegration equation

Dependent Variable: LNRAGR				
Method: Least Squares				
Sample: 1970 2005				
Included observations: 36				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNRAGCAP	0.144091	0.030233	4.766050	0.0000
LNRFERT	0.279778	0.062744	4.459029	0.0001
RI	-0.001385	0.002504	-0.552957	0.5844
LNRAGLABOR	0.511459	0.066712	7.666721	0.0000
DUM86SAP	0.297486	0.108455	2.742938	0.0102
LNRACGS	0.039825	0.016677	2.387982	0.0234
R-squared	0.961215	Mean dependent var		9.946248
Adjusted R-squared	0.954751	S.D. dependent var		0.987669
S.E. of regression	0.210096	Akaike info criterion		-0.131496
Sum squared resid	1.324206	Schwarz criterion		0.132424
Log likelihood	8.366926	Durbin-Watson stat		1.480066

The Engle-Granger test statistic of -5.601804 should be compared with the response surface for any number of regressors, excluding any constant and trend components, 1<n<6, can be calculated as $C(P)=\phi_{\infty}+\phi_1 T^{-1}+\phi_2 T^{-2}$, where $C(P)$ is the P percent critical value. The conclusion about this estimation is to reject the null hypothesis of a unit root in the residual. In essence, there is evidence of cointegration at the 10 percent, 5 percent and 1 percent. The diagram shown in Figure 6.1 also indicates that the residuals are stationary.

Figure 6.1 Residuals of real agricultural output (lnragr)



6.2.2 Estimation results of the error correction model (ECM)

After the long-run cointegration relationship has been determined, the second stage of the Engle-Yoo procedure entails the estimation of an error correction model (ECM), which captures the short-run dynamics of the adjustment process to the long-run equilibrium. It also incorporates the equilibrium error (lagged residual terms) estimated from the long-run equilibrium relationship. The estimated result of the ECM is reported in Table 6.3.

Table 6.3 Estimated result of the error correction model (ECM)

Dependent Variable: D(LNRAGR)				
Method: Least Squares				
Sample (adjusted): 1973 2005				
Included observations: 33 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESIDUAL(-1)	-0.215507	0.111842	-1.926896	0.0635
D(LNRAGCAP)	0.070147	0.022746	3.083912	0.0044
D(LNRACGS(-2))	0.073439	0.011715	6.268808	0.0000
R-squared	0.694003	Mean dependent var		0.089344
Adjusted R-squared	0.673603	S.D. dependent var		0.180100
S.E. of regression	0.102893	Akaike info criterion		-1.623741
Sum squared resid	0.317611	Schwarz criterion		-1.487695
Log likelihood	29.79173	Durbin-Watson stat		1.638553

The interpretation of the coefficients of the ECM may not be necessary (see Du Toit, 1999a; Koekemoer, 1999; Du Toit & Moolman, 2004). The argument was based on the fact that most variables enter the model in differenced form, it becomes intricate to interpret the relationship plausibly. However, the coefficient of the lagged residuals is negative and significant. This

shows that the dynamics adjust towards the long-run equilibrium instead of moving away from the equilibrium path. Since all the variables in the ECM are stationary, the assumptions of classical regression analysis are fulfilled. In the ECM of the equation, the adjusted R^2 is 0.673603 or 67 per cent, which shows the estimation is dependable.

6.2.3 Diagnostic statistical testing

The model was subjected to rigorous diagnostic testing. It was noted that all the variables in the ECM are stationary; therefore, the assumptions of classical regression analysis are fulfilled. This implies that standard diagnostic tests can therefore be used to determine which variables should be included in the final specification of ECM (Harris, 1995:25; Du Toit 1999b:94). The diagnostic test results reported in Table 6.4 reveal that the function passes all the statistical diagnostic tests.

Table 6.4 Diagnostic tests on the real estimated agricultural model

Purpose of test	Test	d.f	Test statistic	Probability	Conclusion
Normality	Jarque-Bera	JB(2)	4.8572	0.0886	Normal
Heteroscedasticity	ARCH LM	$nR^2(2)$	0.064982	0.798788	No heteroscedasticity
Heteroscedasticity	White	$nR^2(2)$	5.411518	0.492215	No heteroscedasticity
Serial correlation	Lung Box Q	Q(12)	6.4754	0.890	No serial correction
Misspecification	Ramsey Rest	LR(2)	0.992500	0.608809	No specification problem

6.2.4 Cointegration correction and adjusted coefficients

In this step, the originally estimated coefficients and t-statistics are adjusted by applying the Engle-Yoo technique, as depicted in Table 6.5.

Table 6.5 Engle-Yoo third step estimation for the agricultural model

Dependent Variable: ECM_AGR				
Method: Least Squares				
Sample (adjusted): 1973 2005				
Included observations: 33 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
0.215507*LNRAGCAP	-0.009386	0.063014	-0.148958	0.8827
0.215507*LNRFERT	0.026260	0.155365	0.169024	0.8670
0.215507*RI	-0.002820	0.004701	-0.599945	0.5534
0.215507*LNRAGLABOR	0.033403	0.181457	0.184081	0.8553
0.215507*LNRACGS	-0.043824	0.033346	-1.314223	0.1994
R-squared	0.270493	Mean dependent var		0.038448
Adjusted R-squared	0.166278	S.D. dependent var		0.091656
S.E. of regression	0.083690	Akaike info criterion		-1.984666
Sum squared resid	0.196113	Schwarz criterion		-1.757923
Log likelihood	37.74699	Durbin-Watson stat		2.595116

The estimation procedure and the new calculated coefficients are shown in Table 6.6.

Table 6.6 The calculation of the new coefficients for agricultural model

Variable	Coefficient	Std. Error	t-Statistic
LNRAGCAP	0.144091 - 0.009386=0.134705	0.063014	2.1377
LNRFERT	0.279778 + 0.026260=0.306038	0.155365	1.9698
RI	-0.001385 - 0.002820= -0.004205	0.004701	-0.8945
LNRAGLABOR	0.511459 + 0.033403=0.544862	0.181457	3.0027
LNRACGS	0.039825 - 0.043824= -0.003999	0.033346	-0.0119

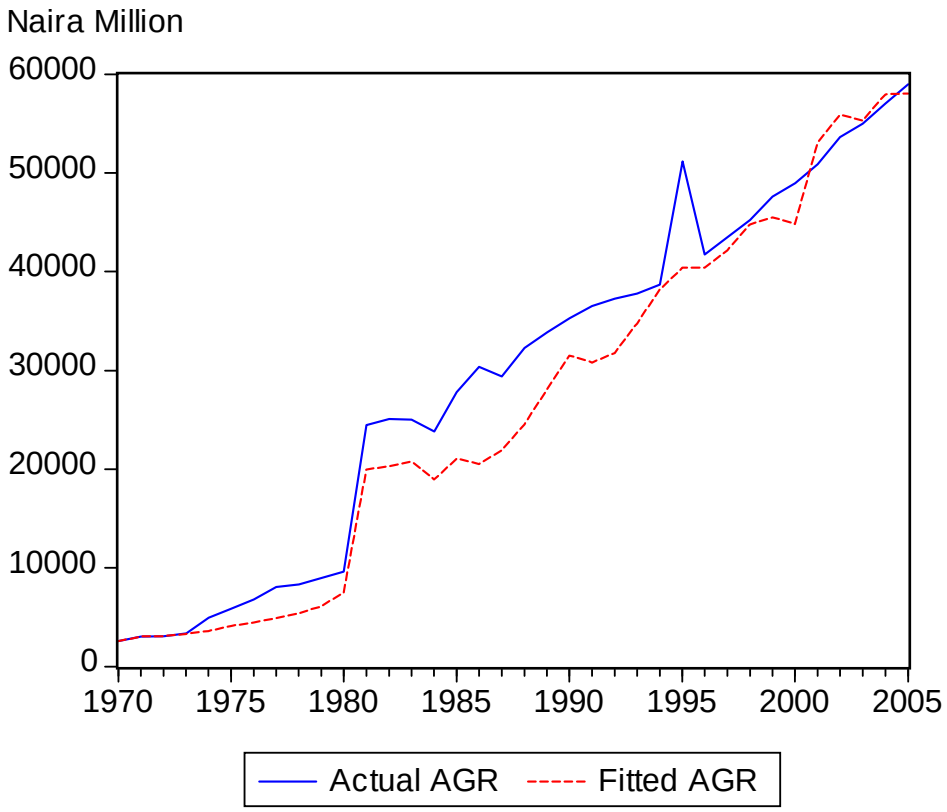
Table 6.7 represents the adjusted coefficient and adjusted t-statistic of the long- run cointegration estimation for the agriculture equation.

Table 6.7 The adjusted coefficients and t-statistics

Variable	Adjusted Coefficient	Adjusted t-Statistic
LNRAGCAP	0.134705	2.1377
LNRFERT	0.306038	1.9698
RI	-0.004205	-0.8945
LNRAGLABOR	0.544862	3.0027
LNRACGS	-0.003999	-0.0119
R-squared	0.961215	
Adjusted R-squared	0.954751	

A dynamic simulation of combined long and short-run characteristics of the model results in the overall fit is presented in Figure 6.2.

Figure 6.2 Actual and fitted values of agriculture model



The closeness of fit of the model depicted in Figure 6.2 shows that the model is stable and well specified. However, while the model moved progressively, it also showed some structural breaks and progression. For example, from the base year 1970, there was a smooth and rapid increase to 1980 when it stooped slightly before experiencing an upward movement until it got to the peak in 2005. The sudden low down and the immediate upward movement from the1980s could be explained as a time period when the agricultural sector was almost losing it contribution to the economy. However, as a result of the Green revolution launched in the 1982, and the subsequent policy strategies and intervention to the sector, the output has improved. The performance of the sector between 2000 and 2005 has shown a much better improvement due to government focused policy attention.

6. 2. 5 Analysis of the results of the estimated model for agriculture and their implications

The estimated multiple cointegration results shown in Table 6.2 of the long-run estimated coefficients reveal that the R^2 is 0.961215 or 96 per cent. This is an indication that 96 per cent of variations in agricultural production within the period under consideration are caused by public capital expenditure, labour, fertiliser, a robust interest rate regime, agricultural credit guarantee scheme, the policy measures and impact of the SAP on the sector. The adjusted R-squared is 0.954751 or 95 per cent. This high value shows that the model is dependable.

The coefficients show the expected signs as discussed in chapter five. The results show that a one per cent increases in public capital expenditure will cause 0.14 per cent increase in agricultural production. Furthermore, a one percent increase in labour supply to the agricultural sector will cause 0.51 per cent increase in the agricultural gross product. Similarly, a one per cent increase in fertiliser usage for crops production will cause 0.28 per cent increase in agricultural production. The results show that a one per cent increase in interest rate charged by the banks for loans granted to farmers have an insignificant -0.001385 per cent decline in agricultural production in Nigeria. Also, a one per cent increase in the agricultural credit guarantee scheme to the sector will cause the agricultural production to increase by 0.039 per cent. This results show that the credit scheme to the farmers have positive significant impact on agricultural production though the magnitude is not large.

However, dum86sap shows a positive impact on the agricultural production in Nigeria. The results show that the introduction of the structural adjustment programmes (SAP) causes the agricultural production to increase to about 0.30 per cent. The sharp increase in agricultural production between 1986 and 1990 reflected a favourable response of agricultural production to the SAP measures (Central Bank of Nigeria, 2000:38). The adjusted coefficients and t-statistic in Table 6.7 show that coefficients of fertiliser and labour increased to 0.31 percent and 0.54 per cent respectively. But the coefficient of pubic capital expenditure decreased slightly to 0.13 per cent, while the adjusted coefficient for interest rate increased to -0.0042, the agricultural credit guarantee scheme dropped to -0.0039 per cent. However, the adjusted t-statistic of all the variables shows a slight decrease while the interest rates coefficient remains insignificant.

The coefficients are subjected to diagnostic statistical tests, and the results confirm that there are no serious problems with autocorrelation and that serial correlations are absent. The adjusted t-statistics also indicate that all the variables are statistically significant. The stability test reveals that the variables included in the model are not mis-specified but are stable.

6. 3 The model for manufacturing

The purpose of the model for manufacturing is two-fold. Firstly the to assess impact of the domestic investment climate with respect to the availability of labour in Nigeria; and secondly, the role of FDI in the Nigerian economy vis-a-vis the impact of these variables on the manufacturing gross output within the period under consideration. The variables shown in Table 6.8 are included in the manufacturing model.

Table 6.8 Data incorporated in the estimated manufacturing model

MANUF	manufacturing value-added GDP
MANLABOR	estimated labour engaged in industry/manufacturing
FDIM	foreign direct investment into the manufacturing sector
EXCH	Naira/dollar exchange rate
MANCAP	public capital expenditure for the manufacturing sector
INFRAST	public expenditure for communication and transportation
EXPORT	Exports of non-oil goods
DUM86SAP	impact of the structural adjustment programme on the manufacturing sector (SAP launched in 1986)
LN	natural logarithms
Data coverage	1970-2005

6.3.1 Estimation results for long-run cointegration equation

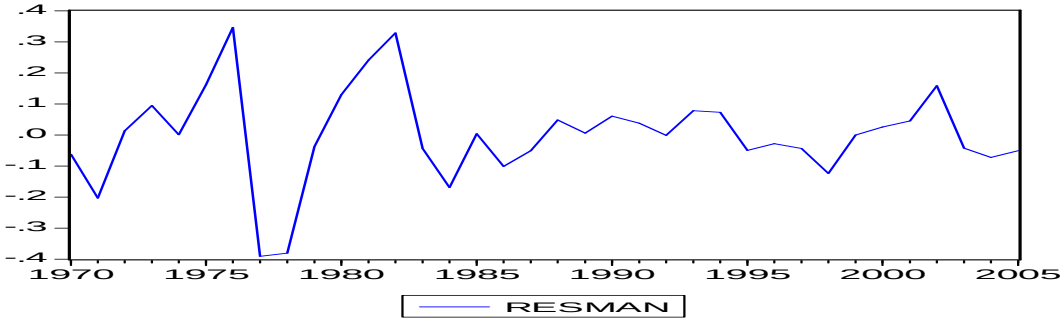
The first step of the Engle-Yoo (1991) three-step estimation technique was applied to test whether the set of variables specified in the empirical manufacturing model is cointegrated. The estimated result shows whether the combination of variables incorporated in the model is consistent with the long-run equilibrium relationship. The cointegration results are reported in Table 6.9.

Table 6.9 Estimated result of the long-run cointegration equation

Dependent Variable: LNRMANUF				
Method: Least Squares				
Sample: 1970 2005				
Included observations: 36				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNRMANLABOR	0.348549	0.153239	2.274552	0.0300
LNRFDIM	0.195541	0.063924	3.058955	0.0046
LNREXCH	-0.082614	0.041861	-1.973549	0.0574
DUM86SAP	0.123274	0.069546	1.772549	0.0861
C	16.26863	1.867324	8.712271	0.0000
R-squared	0.855435	Mean dependent var		22.74094
Adjusted R-squared	0.836782	S.D. dependent var		0.398403
S.E. of regression	0.160956	Akaike info criterion		-0.687129
Sum squared resid	0.803109	Schwarz criterion		-0.467195
Log likelihood	17.36832	F-statistic		45.85929
Durbin-Watson stat	1.453011	Prob(F-statistic)		0.000000

The Engle-Granger test statistic of -5.541749 should be compared with the response surface for any number of regressors, excluding any constant and trend components, 1<n<6, can be calculated as $C(P)=\phi_{\infty}+\phi_1 T^{-1}+\phi_2 T^{-2}$, where $C(P)$ is the P percent critical value. The conclusion about this estimation is to reject the null hypothesis of a unit root in the residual. In essence, there is evidence of cointegration at the 10 percent, 5 percent and 1 percent. The diagram shown in Figure 6.3 also indicates that the residuals are stationary.

Figure 6.3 Residuals: real manufacturing value-added (lnrmanuf)



6.3.2 Estimation results of the error correction model (ECM)

After the long-run cointegration relationship has been determined, the second stage of the Engle-Yoo procedure, the ECM is applied. The estimated results of the ECM are reported in Table 6.10.

Table 6.10 Estimated result of the error correction model (ECM)

Dependent Variable: DLNRMANUF				
Method: Least Squares				
Sample (adjusted): 1973 2005				
Included observations: 33 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESMAN(-1)	-0.786186	0.151841	-5.177696	0.0000
DLNRFDIM(-2)	0.296068	0.089988	3.290063	0.0029
DLNRMANCAP	-0.035805	0.012899	-2.775780	0.0101
DLNRMANLABOR(-1)	0.292775	0.160440	1.824824	0.0795
DLNRINFRAST	0.059601	0.031835	1.872181	0.0725
DLNREXPORT	-0.237181	0.119638	-1.982481	0.0581
DLNREXPORT(-1)	-0.384988	0.148737	-2.588387	0.0156
R-squared	0.680490	Mean dependent var		0.034814
Adjusted R-squared	0.606757	S.D. dependent var		0.179230
S.E. of regression	0.112394	Akaike info criterion		-1.347790
Sum squared resid	0.328440	Schwarz criterion		-1.030349
Log likelihood	29.23853	Durbin-Watson stat		1.708094

The need to build a strong short-run dynamics that will facilitate a long-run equilibrium situation leads to the inclusion of three important variables. These variables are public capital expenditure for the manufacturing sector DLNRMANCAP, infrastructure DLNRINFRAST and non-oil exports goods D(LNREXPORT). The public capital expenditure variable plays crucial role in the manufacturing sector, it shows the government's support and contribution to industrialisation in Nigeria through supervisory, training to improve managerial and entrepreneurial skills, research and development to the sector. Infrastructure is one of the key factors needed in any country that encourages manufacturing enterprises. For this reason the variable is included in the ECM. The non-oil exports from the manufacturing sector earn foreign exchange for the enterprises and to the economy. This variable plays important role in the functioning of the sector. For this reason, it is included in the ECM to foster the long-run dynamics of the equilibrium mechanism.

The interpretation of the coefficients of the ECM may not be necessary (see Du Toit, 1999; Koekemoer, 1999; Du Toit & Moolman, 2004). The argument was based on the fact that most variables enter the model in differenced form, it becomes intricate to interpret the relationship plausibly. However, the coefficient of the lagged residuals is negative and significant. This shows that the dynamics adjust into the long-run equilibrium instead of moving away from the

equilibrium path. Since all the variables in the ECM are stationary, the assumptions of classical regression analysis are fulfilled. In the ECM of the equation, the adjusted R^2 is 0.606757 or 61 per cent, which shows the estimation is dependable.

6.3.3 Diagnostic statistical testing

The manufacturing value-added function was subjected to rigorous diagnostic testing. Once again it must be noted that, since all the variables in ECM are stationary, the assumptions of classical regression analysis are filled. Standard diagnostic tests can therefore be used to determine which variables should be included in the final specification of the ECM (Harris, 1995:25; Du Toit, 1999:94). The diagnostic test results reported in Table 6.11 indicate that the function passes all the statistical diagnostic tests.

Table 6. 11 Diagnostic tests on the real estimated manufacturing model

Purpose of test	Test	d.f	Test statistic	Probability	Conclusion
Normality	Jarque-Bera	JB(2)	1.078167	0.583283	Normal
Heteroscedasticity	ARCH LM	$nR^2(2)$	3.816047	0.148373	No heteroscedasticity
Heteroscedasticity	White	$nR^2(2)$	16.72262	0.271261	No heteroscedasticity
Serial correlation	Breusch-Godfrey	$nR^2(2)$	3.695195	0.157615	No serial correction
Serial correlation	Lung Box Q	Q(12)	14.625	0.263	No serial correction
Misspecification	Ramsey Rest	LR(2)	3.840542	0.146567	No problem of misspecification

6.3.4 Cointegration correction and adjusted coefficients

Table 6.12 gives the summary the Engle-Yoo third-step estimation results.

Table 6.12 Engle-Yoo third step estimation for the manufacturing model

Dependent Variable: ECMAN				
Method: Least Squares				
Sample (adjusted): 1973 2005				
Included observations: 33 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
0.786186*LNRMANLABOR	0.039271	0.027856	1.409813	0.1689
0.786186*LNRFDIM	-0.075619	0.053617	-1.410357	0.1687
0.786186*LNREXCH	0.042925	0.034930	1.228883	0.2287
R-squared	0.065383	Mean dependent var		-0.004696
Adjusted R-squared	0.003075	S.D. dependent var		0.101198
S.E. of regression	0.101042	Akaike info criterion		-1.660050
Sum squared resid	0.306285	Schwarz criterion		-1.524004
Log likelihood	30.39083	Durbin-Watson stat		1.902675

The calculation of the new coefficients and t-statistics is shown in the Table 6.13.

Table 6.13 The calculation of the new coefficients for manufacturing model

Variable	Coefficient	Std. Error	t-Statistic
LNRMANLABOR	0.348549 + 0.039271= 0.38782	0.027856	13.922315
LNRFDIM	0.195541 - 0.075619= 0.119922	0.053617	2.2366414
LNREXCH	-0.082614 + 0.042925= -0.039689	0.034930	-1.1362439
DUM86SAP	0.123274	0.069546	1.772549
C	16.26863	1.867324	8.712271

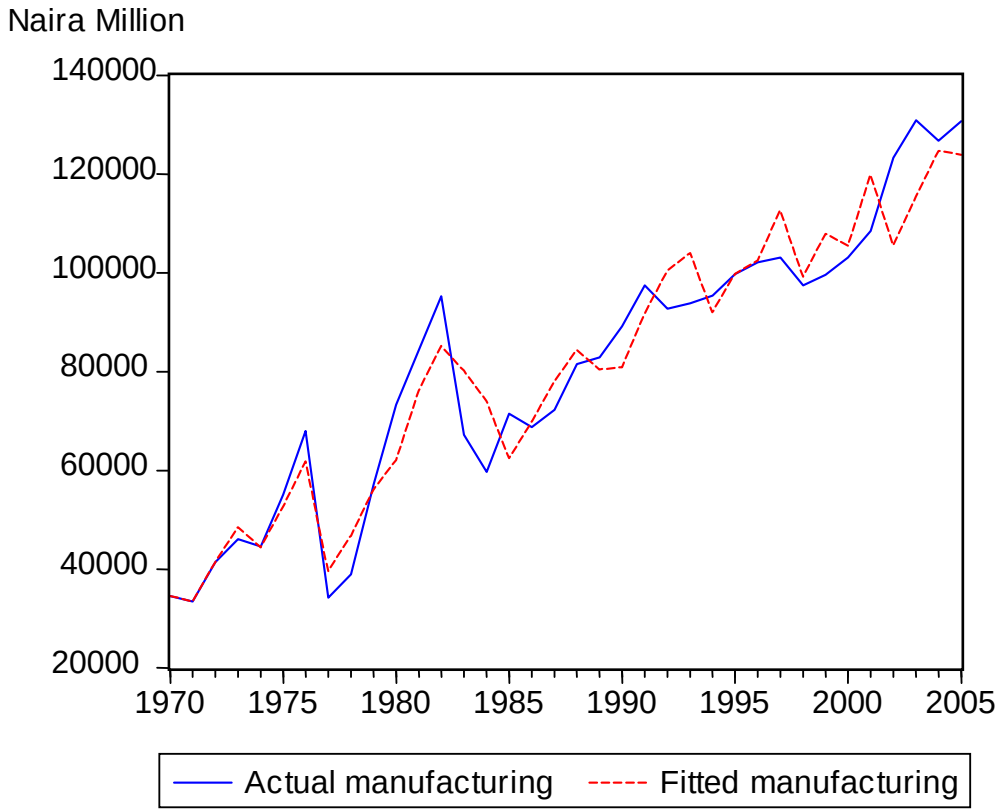
The adjusted coefficients and t-statistics are reported in the Table 6.14.

Table 6.14 The adjusted coefficients and t-statistics

Variable	Coefficient	t-Statistic
LNRMANLABOR	0.38782	13.922315
LNRFDIM	0.119922	2.2366414
LNREXCH	-0.039689	-1.1362439
DUM86SAP	0.123274	1.772549
C	16.26863	8.712271
R-squared	0.855435	
Adjusted R-squared	0.836782	

Based on the new adjusted coefficient, the model for dynamic stimulation of the actual and fitted manufacturing equation was solved. The result is graphically presented in figure 6.4.

Figure 6.4 Actual and fitted manufacturing model



The solved model shows that the actual and fitted results are very close. The trend shows an erratic upward movement from the base year 1970 through to 2005. This explains the growth pattern of the Nigeria's manufacturing GDP within the period under consideration. Ogwuma (1996:69-70) states that the growth momentum of the manufacturing sector is not being sustained due to a poor technology base, poor performance of infrastructural facilities, low production volume and variety, and lack of new foreign capital (FDI). Thus, it is vital that the manufacturing sector in Nigeria increases its productivity, maintains a rapid growth pattern and contributes to the economic development of the country. This could happen with fresh local and foreign capital injection (FDI) and the adoption of new manufacturing technologies in the sector (Ogwuma, 1996:72).

6. 3. 5 Analysis of the results of the estimated manufacturing model and their implications

The estimated cointegration results shown in Table 6.9 reveal that the R^2 is 0.855435 or 86%. The variation in the manufacturing output can be explained by labour (LNRMANLABOR), foreign direct investment (LNRFDIM) into the sector and the policy impact of the SAP (DUM86SAP) during the period of 1970-2005 in Nigeria. The adjusted R-squared exhibits a high value of about 0.836782 or 84%, which shows that the model is dependable. The signs of the coefficients are consistent with the expectations, with the exception of the exchange rates.

The results show that a one per cent increase in labour supply to the manufacturing sector will cause the value-added GDP to increase by 0.35 per cent. Furthermore, a one per cent increase in foreign direct investment into the manufacturing sector of Nigeria will cause the value-added GDP to increase by 0.20 per cent. Also, a one per cent increase in Naira/dollar exchange rate will cause the value-added GDP of the manufacturing sector to decline by -0.08 per cent. Similarly, dum86sap which tests the policy impact of the structural adjustment programme on the manufacturing sector shows a favourable impact. It indicates a 0.12 per cent increase in the value-added manufacturing output.

The adjusted coefficients in Table 6.14 show that labour slightly increased to 0.38782 and foreign direct investment decreased marginally to 0.119922. The Naira/dollar exchange rates also decreased to -0.039689. However, the adjusted t-statistic for labour increases significantly to 13.922 while FDI and Naira/dollar exchange rates decreased slightly to 2.237 and -1.136 respectively.

The coefficients are further subjected to diagnostic testing. The results show that the variables do not suffer from problems of autocorrelation and serial-correlation. The adjusted t-statistics are all statistically significant. Most importantly, the stability test indicates that the model is not misspecified and stable.

6. 4 Model for the mining and quarrying sector

The primary goal of this mining and quarrying cointegration estimation model is to assess the impact of public policy and the implications of mobilising financial resources towards stimulating investment and growth in the solid minerals resources sector for the general

enhancement of the productive capacity of the country. Growth in the mining sector should help to create employment, expanding the revenue sources of Nigeria and, the multiplier effect enhancing development and poverty-reduction in the country. Table 6.15 shows the data included in the long-run cointegration estimation of the mining and quarrying model.

Table 6.15 Data incorporated in the estimation of the mining and quarrying model

MINQUA	mining and quarrying value-added GDP
MINCAP	public capital expenditure for the mining and quarrying sector
LABORMINE	labour in mining and quarrying (as proxy for industry labour)
SOCOMS	public expenditure for social and community services
EXPORT	export of non-oil commodities
DUM86SAP	impact of the structural adjustment programme on the mining and quarrying sector (SAP launched in 1986)
DUM80s	the impact of government policies and programmes on the mining and quarrying sector.
LN	natural logarithms
Data coverage	1970-2005

6.4.1 Estimation results of long-run cointegration equation

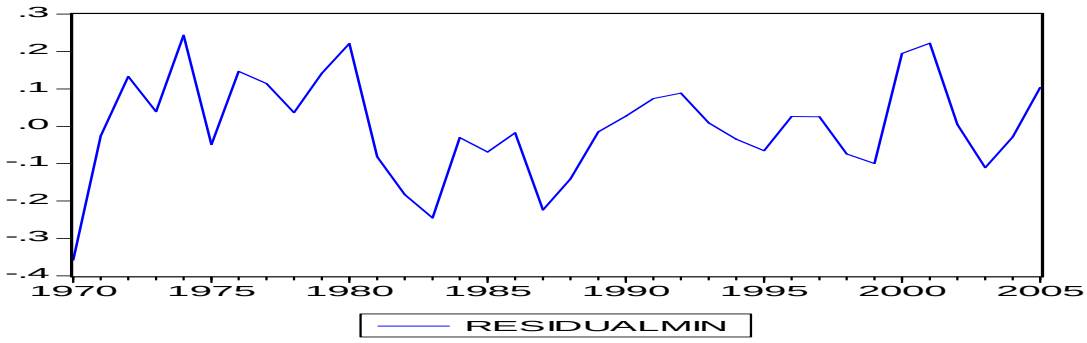
The first Engle-Yoo (1991) cointegration estimation of the real mining and quarrying (lnrminqua) is carried out to determine if the variables included in the model have long-run cointegration relationship for testing the long-run equilibrium relationship. The cointegration results are reported in Table 6.16.

Table 6.16 Estimated resulted of the long-run cointegration equation

Dependent Variable: LNRMINQUA				
Method: Least Squares				
Sample: 1970 2005				
Included observations: 36				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNRMINCAP	0.049981	0.013501	3.702039	0.0008
LNRLABORMINE	0.345660	0.070412	4.909082	0.0000
DUM86SAP	-0.321980	0.076973	-4.183024	0.0002
DUM80S	-0.242170	0.075437	-3.210220	0.0031
C	19.27908	0.948670	20.32222	0.0000
R-squared	0.734754	Mean dependent var		24.25895
Adjusted R-squared	0.700529	S.D. dependent var		0.262059
S.E. of regression	0.143409	Akaike info criterion		-0.917981
Sum squared resid	0.637553	Schwarz criterion		-0.698048
Log likelihood	21.52366	F-statistic		21.46815
Durbin-Watson stat	1.191332	Prob(F-statistic)		0.000000

The first methodological step of the Engle-Yoo technique was adapted to test whether or not the set of variables specified in the empirical model is cointegrated, in other words, whether this particular combination of variables is consistent with the long-run equilibrium relationship.

Figure 6.5 Plot of the stationary residuals of the series (residualmin)



The Engle-Granger test statistic of -4.733806 should be compared with the response surface for any number of regressors, excluding any constant and trend components, 1<n<6, can be calculated as $C(P)=\phi_{\infty}+\phi_1 T^{-1}+\phi_2 T^{-2}$, where $C(P)$ is the P percent critical value. The conclusion about this estimation is to reject the null hypothesis of a unit root in the residual. In essence, there is evidence of cointegration at the 10 percent, 5 percent and 1 percent. The diagram shown in Figure 6.9 also indicates that the residuals are stationary.

6.4.2 Estimation results of the error correction model (ECM)

After the first long-run cointegration relationship has been dealt with, the second stage of the Engle-Yoo procedure the ECM, is applied, as usual. The estimated results of the ECM are reported in Table 6.17.

Table 6.17 Estimated results of the error correction model (ECM)

Dependent Variable: D(LNRMINQUA)				
Method: Least Squares				
Sample (adjusted): 1971 2005				
Included observations: 35 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESIDUALMIN(-1)	-0.317421	0.104364	-3.041468	0.0047
D(LNRSOCOMS)	0.039819	0.017024	2.338972	0.0257
D(LNREXPORT)	0.572139	0.085375	6.701463	0.0000
R-squared	0.707268	Mean dependent var		0.039194
Adjusted R-squared	0.688972	S.D. dependent var		0.142436
S.E. of regression	0.079437	Akaike info criterion		-2.145897
Sum squared resid	0.201926	Schwarz criterion		-2.012581
Log likelihood	40.55319	Durbin-Watson stat		1.925130

Interpreting the coefficients of the ECM may not be necessary (see Du Toit, 1999; Koekemoer, 1999; Du Toit & Moolman, 2004); since most variables enter the model in differenced form, it becomes intricate to interpret the relationship plausibly. However, the coefficient of the lagged residuals is negative and significant. This shows that the dynamics adjust into the long-run equilibrium instead of moving away from the equilibrium path. Since all the variables in the ECM are stationary, the assumptions of classical regression analysis are fulfilled. In the ECM of the equation, the adjusted R^2 is 0.688972 or 69 per cent, which shows the estimation is dependable.

6.4.3 Diagnostic statistical testing

The results of the ECM cointegration estimation for the mining and quarrying model are now subjected to statistical diagnostic tests. Since all the variables in the ECM are stationary, the assumptions of classical regression analysis are satisfied. Standard diagnostic tests can therefore be used to determine which variables should be included in the final specification of the ECM (see Harris, 1995:25; Du Toit, 1999:94). The diagnostic test results reported in Table 6.18 indicate that the model passes all the statistical diagnostic tests.

Table 6. 18 Diagnostic tests on the real estimated mining and quarrying model

Purpose of test	Test	d.f	Test statistic	Probability	Conclusion
Normality	Jarque-Bera	JB(2)	0.887111	0.641751	Normal
Heteroscedasticity	ARCH LM	$nR^2(2)$	8.802333	0.012263	No heteroscedasticity
Heteroscedasticity	White	$nR^2(2)$	3.588072	0.732218	No heteroscedasticity
Serial correlation	Breusch-Godfrey	$nR^2(2)$	0.705390	0.702792	No serial correction
Serial correlation	Lung Box Q	Q(12)	3.5942	0.990	No serial correction
Misspecification	Ramsey Rest	LR(2)	1.317511	0.517495	No specification problem

6.4.4 Cointegration correction and adjusted coefficients

Table 6.19 summarises the results of the third Engle-Yoo step estimation and the adjusted coefficients respectively.

Table 6.19 Engle-Yoo third step estimation for the mining and quarrying model

Dependent Variable: ECM				
Method: Least Squares				
Sample (adjusted): 1971 2005				
Included observations: 35 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
0.317421*LNRMINCAP	-0.016978	0.014063	-1.207287	0.2359
0.317421*LNRLABORMINE	0.008625	0.006764	1.275161	0.2112
R-squared	0.041742	Mean dependent var		0.005818
Adjusted R-squared	0.012704	S.D. dependent var		0.076839
S.E. of regression	0.076349	Akaike info criterion		-2.251562
Sum squared resid	0.192362	Schwarz criterion		-2.162685
Log likelihood	41.40233	Durbin-Watson stat		1.963805

Table 6.20 shows the calculation of the new coefficients and t-statistics.

Table 6.20 The calculation of the new coefficients for mining and quarrying model

Variable	Coefficient	Std. Error	t-Statistic
LNRMINCAP	0.049981 - 0.016978= 0.033003	0.014063	2.346797
LNRLABORMINE	0.345660 + 0.008625=0.354285	0.006764	52.37803
DUM86SAP	-0.321980	0.076973	-4.183024
DUM80S	-0.242170	0.075437	-3.210220
C	19.27908		20.32222
R-squared	0.734754		
Adjusted R-squared	0.700529		

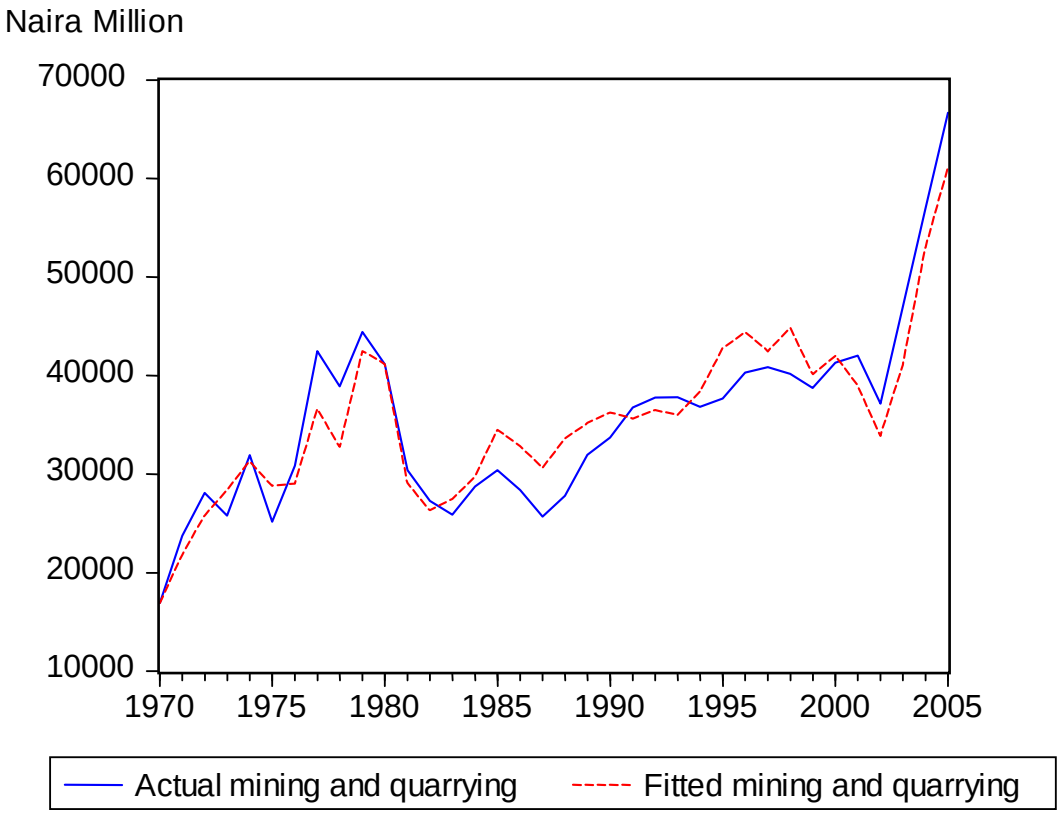
The adjusted coefficients and t-statistics are shown in Table 6.21.

Table 6.21 The adjusted coefficients and t-statistics

Variable	Coefficient	t-Statistic
LNRMINCAP	0.033003	2.346797
LNRLABORMINE	0.354285	52.37803
DUM86SAP	-0.321980	-4.183024
DUM80S	-0.242170	-3.210220
C	19.27908	20.32222
R-squared	0.734754	
Adjusted R-squared	0.700529	

Based on the new adjusted coefficients, the model for dynamic simulation of the actual and fitted mining and quarrying equation was solved. The result is graphically presented in Figure 6.6.

Figure 6. 6 Actual and fitted values of mining and quarrying model



The actual and fitted solved model in Figure 6.6 displays an erratic and slightly onward trend. The trend explains the growth pattern of the Nigeria's mining and quarrying (solid mineral) sector. The sector is characterised by low productive activity over the year due to the government's deliberate policy action. The 1979 and 1999 constitutions of the Federal Republic of Nigeria place the mines and mining and quarrying activities within the exclusive

legislative jurisdiction of the national government (Federal Republic of Nigeria, 1979:16; 1999:131). The deregulation and privatisation of the mining sector would probably improve its growth momentum and potential to contribute to the economic development of Nigeria. Facilitating the productive activity of the sector would enhance rapid onward growth pattern at a faster rate.

The estimation of the cointegration results for valued-added in mining and quarrying shows that the R^2 is 0.734754 or 73 per cent. This implies that all the variations for the period between 1970 and 2005 can be explained by the public capital expenditure for the mining and quarrying and labour in the sector. Similarly, the adjusted R-squared is 0.700529 or 70 per cent, which proves that the model is dependable. The results confirm the basic assumptions stated earlier in Chapter five, that all the coefficients of the variables included in the cointegration estimation model will be positively signed. However, the dum80s which represents the impact of changes in government policies on the sector shows a weak negative relationship with mining and quarrying gross output within the period under consideration.

The negative relationship between the changes in the government policies and the impact on the mining and quarrying sector could perhaps be explained by the fact that the 1979 and 1999 constitutions of the Federal Republic of Nigeria place the mines and the mining and quarrying activities under the control of the national government as mentioned above (Federal Republic of Nigeria, 1979:16; 1999:131). Thus, with the exception of government ministries and agencies, private sector participation mining is extremely difficult in Nigeria. This restriction thus limits the mining or extraction of the solid minerals by private enterprises which could serve as an engine for economic activities and growth in the sector. Limited activity in the mining and quarrying sector could also slow down the contribution of the sector to economic growth and development. It is surprising that the structural adjustment programme launched in 1986 (DUM86SAP) has a negative relationship with the output growth and development of the mining and quarrying sector. Perhaps the exclusive control of the solid minerals by the federal government within the SAP period contributes to the negative policy impact on the sector.

However, the estimation results show that the coefficients of public capital expenditure and labour are positively signed. This implies that a one per cent increase in public capital expenditure will cause the GDP to increase marginally by 0.049 per cent. Similarly, a one per cent increase in labour supply to the mining and quarrying sector will cause the GDP to increase by 0.35 per cent. The results also suggest that these variables could play a crucial positive role in the expansion of mining and quarrying activities, gross national income and poverty reduction in the country. As shown by Onah (2004:1), the development of the mineral sector promotes economic activity through investment, employment of resources, increased output and enlarged aggregate demand. The results of the adjusted coefficients and t-statistics show that public capital expenditure for mining and quarrying dropped marginally to 0.033 per cent, while labour gained slightly after the adjustment process. The t-statistic labour increased to 52.378, but the t-Statistic for public capital expenditure dropped slightly to 2.347.

The variables in the model are subjected to diagnostic statistical testing, and the results confirm that the model is stable and there are no problems of serial correlation. The results show also that the model does not suffer from any specification problem. In the same manner, the values of the adjusted t-statistics show that the coefficients are statistically significant.

6.5 Dynamic simulation response property of the models

Dynamic adjustment (percentage change) shock on the variables included in the models was executed. The 10 percent shock of the chosen variables from 1980 to 2005 coincides with the period when the civilian administration in Nigeria launched the Green Revolution programme. The Green Revolution is a strategy for the attainment of self-sufficiency in food production through the application of an appropriate technology package to the existing system in a bid to meet Nigeria's growing demand for food. Through this programme, large-scale irrigation schemes, budgetary concessions to commercial farms, joint-venture agricultural enterprises, agricultural credit guarantee schemes and the promotion of integrated rural development projects, the level of agricultural output is expected to rise to exceed the demand in the sector. According to Akor (1985:101), the Green Revolution is a strategy for agricultural transformation with the objective of eliminating rural and urban food shortages and poverty. The civilian administration was able to induce some positive changes capable of improving the macroeconomic stability and growth of the economy, especially with regards to improving the

agricultural production in the country, since the 1980s. Thus, the following section is devoted to the analysis of the response to dynamic shocks of the variables estimated in the models.

6.5.1 Policy shocks

The exogenous variables are shocked in order to analyse the response characteristic of the models. The variables shocked are mostly those included in the long-run estimation of the cointegrated econometric model. These variables include: public capital expenditure for agriculture (Agcap); labour in the agricultural sector (Aglabor); foreign direct investment into the manufacturing sector (Fdim) and labour engaged in manufacturing (manlabor). Others include: public capital expenditure for the mining and quarrying (mincap) and labour force in mining and quarrying (labormine). The shocked variables are subjected to a permanent increase of 10 per cent. All the variables are shocked from 1980 onwards. The resulting effects of the shocks are illustrated graphically in Figures 6.7 to 6.12.

Figure 6.7 The effect of a 10 percent increase in public capital expenditure on the agricultural gross product

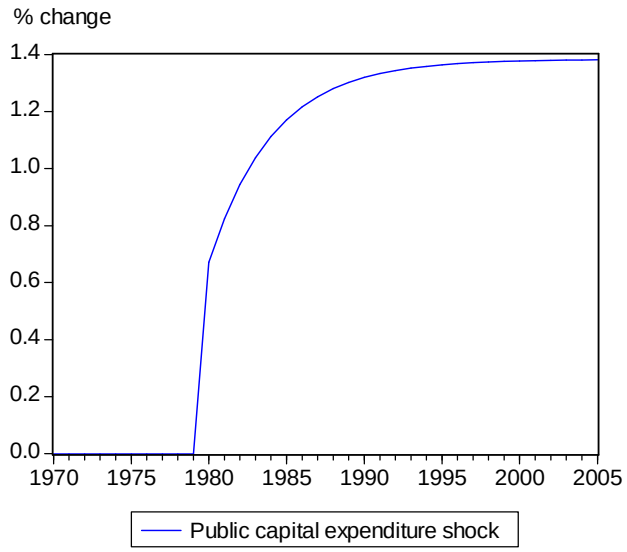


Figure 6.7 shows the dynamic adjustment (percentage change) caused by the public capital expenditure for agricultural production. A 10 per cent increase in capital expenditure for the agricultural sector causes an increase of more than 1 percent in agricultural production. The

effect of the shock is seen as the GDP increases onward from the base year 1980 to 1995, before it returns to equilibrium through 2005.

Figure 6.8 The effect of a 10 percent increase in labour on the agricultural gross product

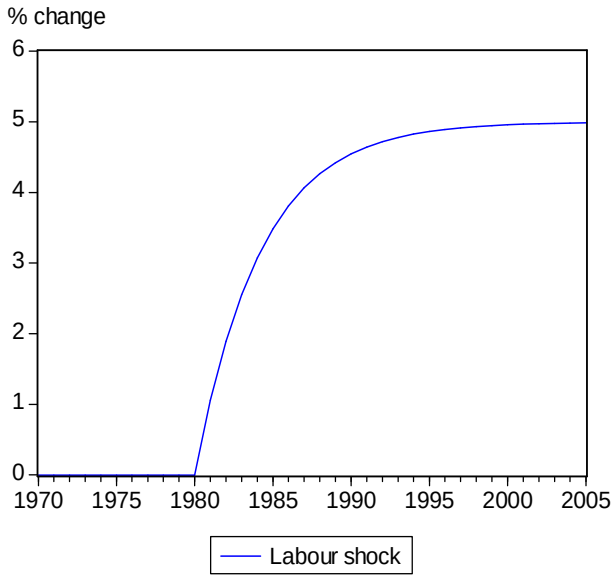


Figure 6.8 shows the dynamic adjustment (percentage change) caused by a 10 per cent increase in labour supply on agricultural production. A 10 per cent increase in labour causes an increase of more than 1 per cent from the base year 1980 to 1995 before it returns to equilibrium through 2005.

Figure 6. 9 The effect of a 10 per cent increase in FDI on the manufacturing gross product

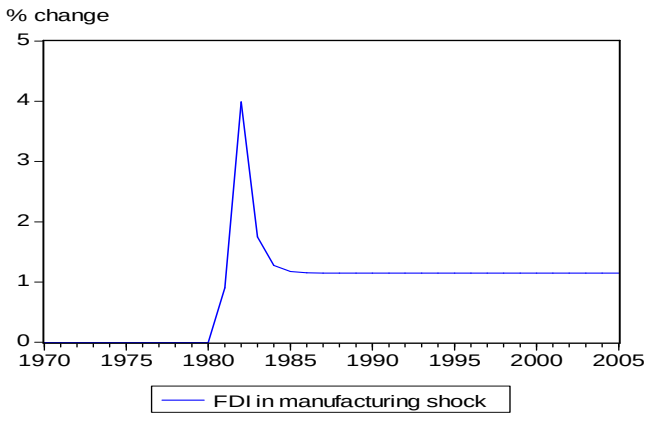


Figure 6.9 shows the dynamic adjustment (percentage change) caused by a 10 per cent increase in FDI into the manufacturing sector. The effect of this shock shows that a 10 per cent increase in FDI inflow will cause an onward increase from the base year 1980 to 1983 before it returns to equilibrium through 2005. This effect shows that FDI can impact positively to the growth of the manufacturing GDP.

Figure 6.10 The effect of a 10 per cent increase in labour on the manufacturing gross product

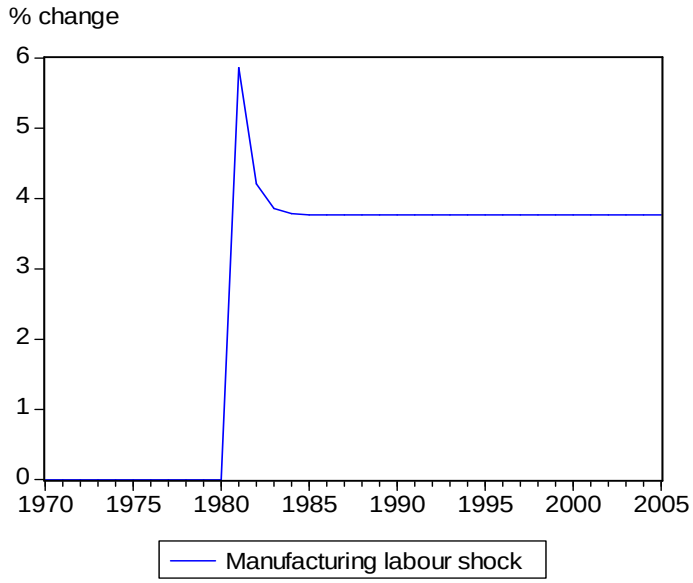


Figure 6.10 shows the dynamic adjustment (percentage change) caused by a 10 per cent increase in labour supply in the manufacturing sector. The effect of this shock shows that a 10 per cent increase in labour supply will cause an onward increase from the base year 1980 to 1983 before it returns to equilibrium through 2005. This effect shows that labour can impact positively to the growth of the manufacturing GDP.

Figure 6.11 The effect of a 10 per cent increase in capital on the mining and quarrying gross product

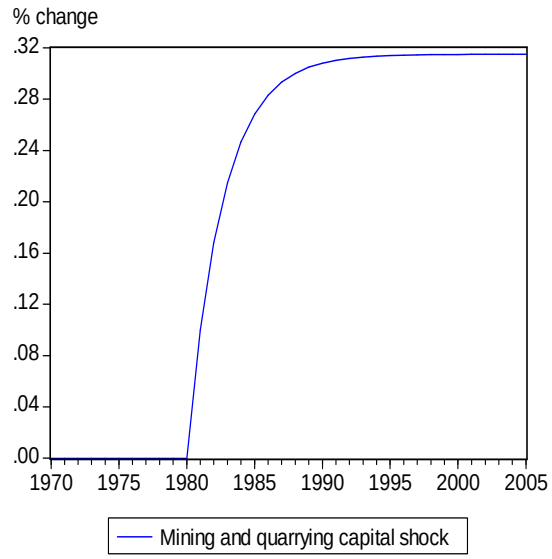


Figure 6.11 shows the dynamic adjustment (percentage change) caused by an increase in 10 per cent in public capital expenditure for the mining and quarrying sector. A 10 per cent increase in capital to the mining and quarrying sector will cause a sharp increase of less than 1 per cent in the GDP of mining and quarrying from the base year 1980 to 1990 before it reaches equilibrium and stabilises through 2005.

Figure 6.12 The effect of a 10 per cent increase in labour supply on the mining and quarrying gross product

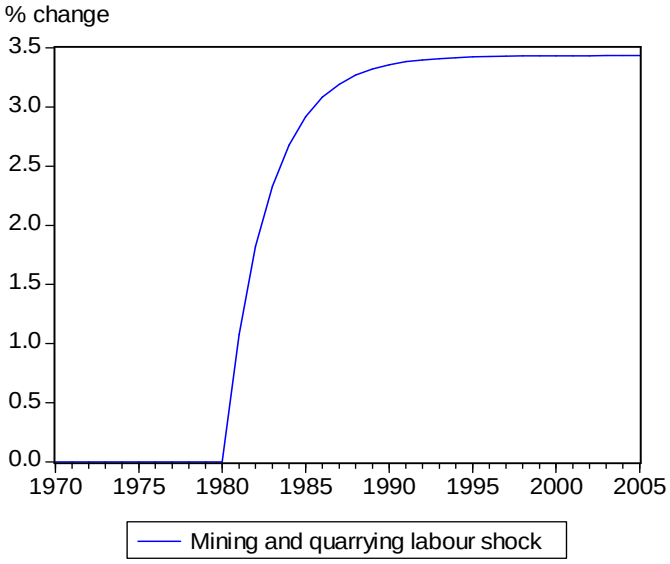


Figure 6.12 shows the dynamic adjustment (percentage change) caused by an increase in 10 per cent in labour supply to the mining and quarrying sector. A 10 per cent increase in labour supply to the mining and quarrying sector will cause a sharp increase of more than 1 per cent in the GDP of mining and quarrying from the base year 1980 before it reaches equilibrium and stabilises through 2005.

Thus these dynamic increases (shocks) in the exogenous variables included in the cointegration econometric models cause significant positive responses overall, suggesting those factors potential for accelerating the agricultural, manufacturing and mining and quarrying sectors growth and development. In the following section, the estimated models forecast from 2005 to 2008 are presented. The actual and forecast values in the models are then compared, to ascertain the policy interventions needed to achieve the forecast for the agricultural, manufacturing, mining and quarrying production in Nigeria.

6. 5. 2 Forecasts

Despite the limited availability of cointegrating data for the econometric estimation, the variables included in the models in the previous section were successfully solved for the period of 1970 through 2005. Now using the estimated values for the variables for years 2006, 2007 and 2008, the forecast and actual values of all endogenous variables are determined in the models, as presented below.

Figure 6.13 depicts the actual and forecast for the real agricultural GDP. The amount for real agricultural output forecast is ₦6.42 billion for 2006, ₦6.44 billion for 2007 and ₦6.52 billion for 2008. The actual amount generated during these years is included for comparison. The forecast values for Nigeria's agricultural sector estimated can be achieved if the country's relatively large active labour force is motivated to engage in agriculture (see Meier & Rauch, 2005:393) It is also important that the public capital expenditure for the agricultural sector be increased, implemented and monitored to achieve the policy strategy and objective of the government to boost production in the sector. In addition, the banks should be encouraged to expand their loans portfolios for agricultural production while keeping the interest rates regime as robust as possible. The supply of fertiliser to the farmers at affordable cost, should be

encouraged in order to mass produce crops for both domestic and foreign markets. The graphical illustration of the forecast model is presented also in Figure 6.13.

Figure 6.13 Actual and forecast for the real agricultural GDP from 2006 to 2008

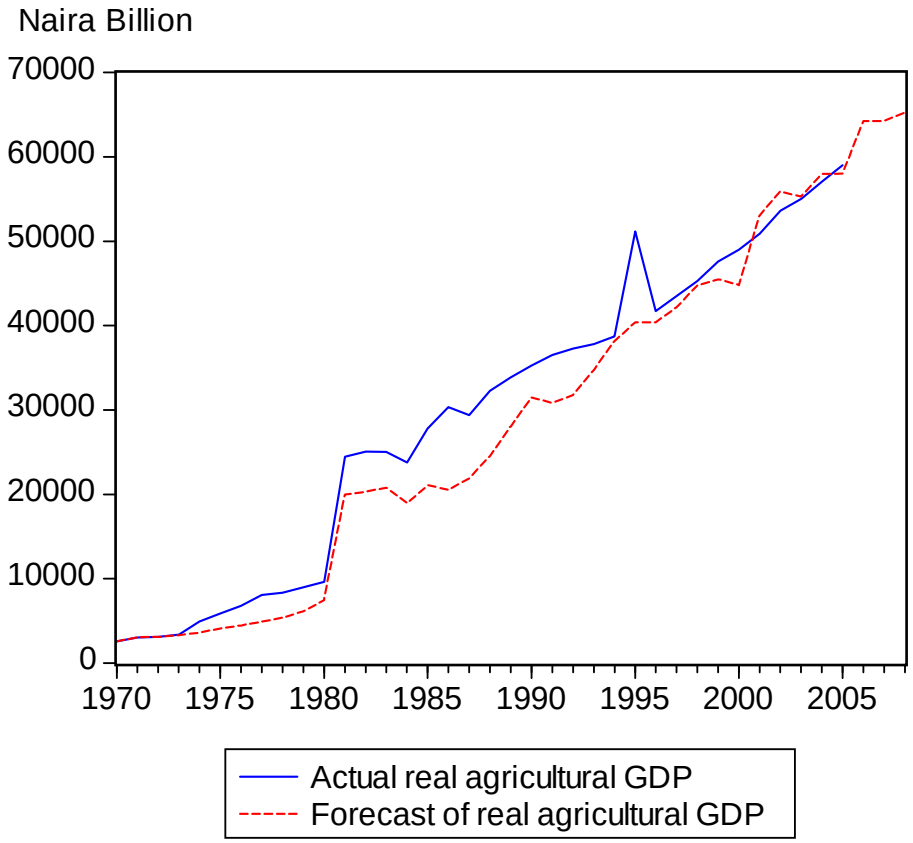


Figure 6.14 shows the estimated impact of labour, FDI into the manufacturing sector and the SAP introduced in 1986 in Nigeria. The amount for the real manufacturing gross output forecast is ₦13.46 billion for 2006, ₦13.99 billion for 2007 and ₦14.63 billion for 2008. However, to ensure that the forecast values of the manufacturing GDP are achieved, it is important that the government improves the investment climate by addressing the challenges in the manufacturing sector in Nigeria. These challenges include infrastructure and security. In addition, the manufacturers need to focus on research and development. Adopting new modern machinery, equipment and technologies should be given top priority in the sector. The graphical illustration of the forecast model is presented in Figure 6.14.

Figure 6.14 Actual and forecast for the real manufacturing GDP from 2006 to 2008

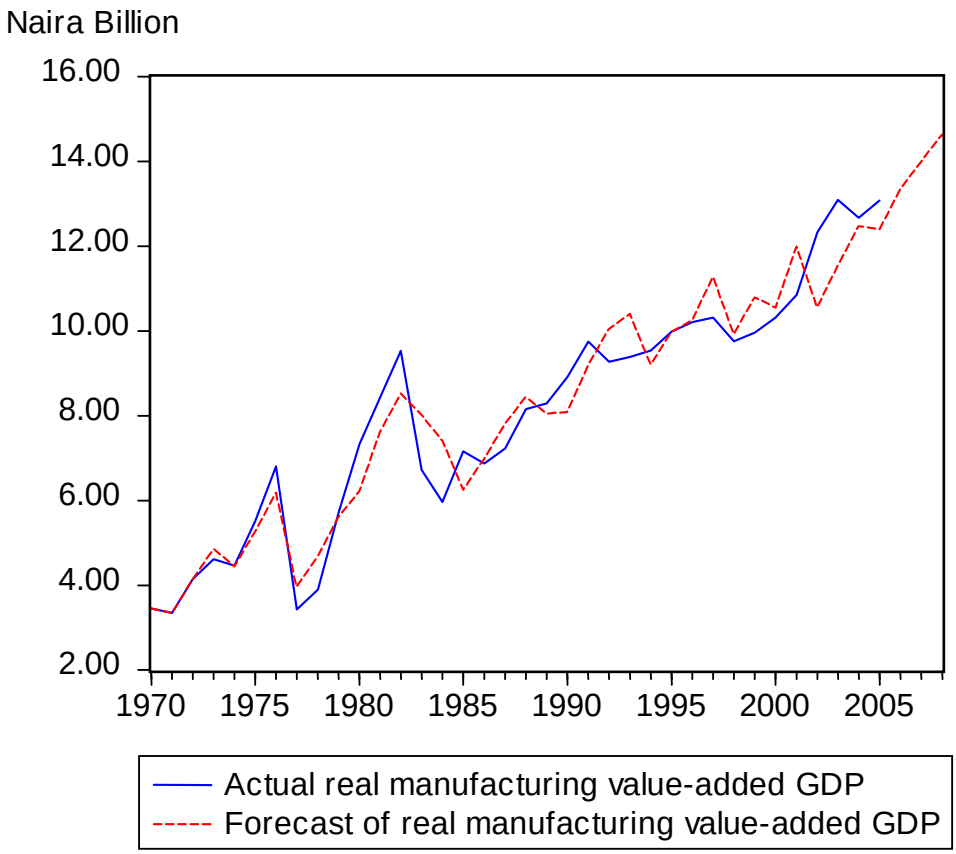
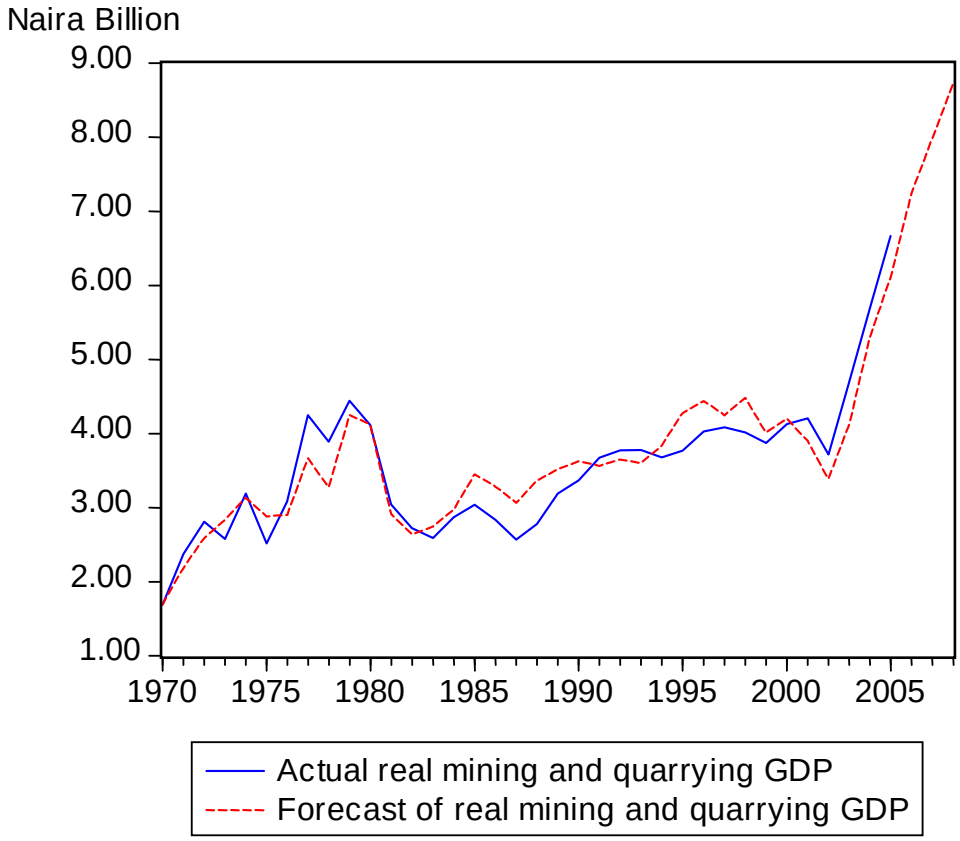


Figure 6.15 represents the actual and forecast output for the mining and quarrying for the period 2005 through 2008. The model estimates the impact of labour and public capital expenditure for the mining and quarrying sector. The gross output of mining and quarrying forecast for 2006 is ₦7.23 billion, ₦7.98 billion for 2007 and ₦8.72 billion for 2008. The forecast values for mining and quarrying GDP can be attained through speedily privatisation of the mines, engaging more active labour in the sector and increasing the export of the commodities. The 1979 and 1999 constitutions of the Federal Republic of Nigeria placed the mines and mining and quarrying activities under the exclusive control of the national government (Federal Republic of Nigeria, 1979:16; 1999:131). The deregulation and privatisation of the sector would trigger more productive activity in the mining and quarrying sector.

The forecast values of the GDP of the mining and quarrying sector should be attained for Nigeria to experience high level of development. Consequently, large injection of foreign capital through new FDI should be targeted; policy advocates that deal with creating an enabling business environment in the sector need to emphasise tax incentive packages for the present and potential mining firms. This will encourage these firms to efficiently engage in mining activity rather than keeping the mines dormant. Sustained increases in the public expenditure for social and community services coupled with improved social responsibility of the mining companies to the communities where the mineral deposits are found will foster peace and productivity in the sector. The graphical illustration of the forecast model is presented in Figure 6.15.

Figure 6. 15 Actual and forecast real value-added GDP for the mining and quarrying from 2006 to 2008



The actual and forecast models reveal that the dynamic econometric cointegration estimation depends generally on the joint behaviour of the variables in the respective models. The observed variations and positive trends of the fitted models have proven that the models are dependable.

As shown in the forecast figures for GDP of agriculture, manufacturing and mining and quarrying, the growth sectors of Nigeria's economy could be stimulated to rapid growth by domestic and foreign financial investment into the sectors. It is significant that the growth path of the agricultural GDP suggests that more people could be productively engaged in the agricultural production, especially in large-scale commercial farming. With improved financial intermediation and investment by the commercial banks through efficient mechanisms put in place for the smooth operation of the agricultural credit guarantee scheme (ACGS), increased public (budgetary) expenditure for social and community services especially to the rural areas, improved fertiliser usage, the output potential of the sectors could be significantly harnessed for the development of the Nigerian economy. More foreign exchange could accrue to the country through the exports of the agricultural and solid mineral commodities.

6. 6 Dynamic simulation of the results and the policy-scenarios

The dynamic simulation of results for the various policy scenarios are shown in Table 6.22. The simulations are run for the policy scenario from the results of the long-run cointegration econometric estimated models. The simulation results of the policy proposals highlight the relevance of the results for the policy targets, policy goal and action steps that must be taken to harness the resource potentials of the agricultural, manufacturing and the mining and quarrying sectors of the Nigerian economy.

Table 6. 22 Policy proposals based on the empirical results

Scenarios	Variables	Policy targets	Policy goal
Control/strategy	Positive significant		
Improved production and socio-economic conditions	▪ Agcap: the public capital expenditure for the agricultural and mining and quarrying sectors	▪ Improved housing and rural electricity provision; ▪ Improved primary and secondary education; ▪ Improved health care, (availability, affordability/accessibility and quality) ▪ Improved adult literacy; ▪ Improved life expectancy; ▪ Decrease in mortal rate ▪ Decrease in violence and unrest at the grass roots; disincentives to rural-urban migration; and ▪ Improved telecommunications and information flow to rural population ▪ Improved mining and quarrying (solid mineral) policy with incentives structure for private sector ▪ Improved interaction and consultation between firms exploiting the natural resources (land, forest, and minerals)	-eradication of water-borne diseases -improved productive socio-economic activities -improved economic and political stability -efficiency in production -improved quality of labour -improved welfare and service delivery -improved indigenous human capital development -facilitate economic growth and development across geo-political zones of the country
Increased financing of growth sectors	▪ Credit guarantee scheme to the agricultural sector	▪ Improved cost-effective production; ▪ Lower cost of production; ▪ Disincentive to higher consumer prices; ▪ Create and empower entrepreneurial investment (small and medium scale enterprises); and ▪ Induce growth, development and political stability	-improved sustainable growth of diversified economy -improved research institutions and modern agriculture -enhanced export-led industrial production
Increased foreign investment	▪ FDI in to the manufacturing sector	▪ Increased drive for investment and government to encourage the proliferation FDI large-scale and small-scale mining ▪ Create investment friendly environment; ▪ Accelerate foreign business registration; ▪ Reduce the cost of doing business in the country, by eradicating corruption; ▪ Induce cost-effective production; and put in place a robust package of industrial policy-incentives (fiscal and monetary) ▪ Ensure orderly and competitive playing field for the various growth sectors of the economy ▪ Improved mining and quarrying (solid mineral) policy with incentives structure for private sector	-improved socio economic environment and attractiveness of Nigeria as preferred investment destination -improved social, legal, good governance and rule of law -improved efficiency of production and cost-effective investment opportunities
Increased soil fertility and crops production	▪ Fertiliser improves soil nutrients	▪ Increased incentive for high crop yields ▪ Disincentive for environmental degradation ▪ Improved farming system and land/soil conservation	-stimulate fertiliser production plants/firms in the country - contributes to foreign exchange earning and save excessive imports of fertiliser
Increased labour productivity and employment generation	▪ Labour employed in agriculture, manufacturing	▪ Improved productivity of for peasant farmers ▪ Increased production by commercial agriculture	-create more new jobs in the rural areas arising from large commercial agricultural activities,

	and mining and quarrying sectors		manufacturing absorbing more labour from agriculture and mining sectors

Source: Extracted from the empirical results

6. 7 Summary of the main findings and conclusion

Three behavioural equations defined in the form of a neoclassical supply-side model for the Nigerian economy are estimated individually. Of the three equations, one each is specified for the agricultural sector, the manufacturing, and for the mining and quarrying sectors respectively.

The estimated agricultural equation shows that the gross domestic output is strongly and positively related to labour, public capital expenditure, fertiliser and the agricultural credit guarantee scheme. An empirical study by Wiebe et al (2003:433) finds that labour and fertiliser increase the productivity of agriculture. This finding is consistent with the results of this study. As seen in the results, Nigerian agriculture is highly labour-intensive. This result also agrees with Meier and Rauch (2005:393), who assert that more people in the developing countries need to be encouraged to engage in agricultural production in order to feed the teeming population and eradicate poverty.

This implies that if more people go into agriculture, the gross output is likely to increase. In order to attract more labour into the sector, there should be public education programmes on the importance of agriculture. There is also an urgent need to intensify the on-going efforts at rural development. These efforts should concentrate on the provision of basic infrastructure and amenities such as electricity, clean and drinkable water, access roads and other things people in the rural areas think of as modernisation.

The results also show a strong positive relationship between fertiliser and the gross output of the sector. This result confirms the Federal Office of Statistics (2004:87) report that shows an increasing performance in agricultural production arising from improvements in fertiliser supply, distribution and utilisation in Nigeria.

The role of the government's involvement in agricultural production is seen from the results. The capital expenditure of Nigeria's federal government in the sector has a strong positive relationship with the gross output. By implication, the capital expenditure for the agricultural

sector needs to be increased in order to increase output. The government should however direct its attention to the provision of quality and functional primary education, healthcare and irrigation facilities in the country's rural agricultural areas. Policy attention should be given to agricultural research and extension services for training farmers and improving methods of farming. HIV/AIDS intervention programmes must be incorporated in the training of the agricultural extension workers so that farmers can be adequately informed on the prevention of the diseases and the treatment and care of the infected.

For the manufacturing equation, the results show that labour, FDI and the SAP coefficients are positively related to the GDP of manufacturing. However, the positive signs of the labour, FDI and the SAP coefficients in the results call attention to the need to inject fresh foreign capital and adopt modern technologies in the manufacturing sector. Enabling investment climate needs to be encouraged so that private domestic and foreign investment into the manufacturing sector can easily be attracted to drive the growth process in the sector.

The results of the estimated mining and quarrying equation show that labour force and public capital expenditure for mining and quarrying sector are positively related to the value-added mining and quarrying GDP. This result is consistent with Onah (2004:1) who states that the development of the solid mineral sector promotes economic activity through investment and employment of resources. Kazilimani, Graca and McMahon (2003:256) state that about 90 per cent of the active population of mining communities engage in diverse activities such as extraction, transporting, processing, trade and businesses established at markets. The estimated results and the discussion in the literature support the potential role of the mining and quarrying sector in the economic development of Nigeria.

The results of the estimated value-added manufacturing equation show an erratic onward growth pattern. This growth trend is attributable to the poor infrastructure, high cost of importing raw materials, obsolete machinery and equipment and dearth of foreign capital challenges the sector has faced over the years (Ogwuma, 1996:69). Thus, to ensure that the manufacturing sector is stimulated to increase its contribution to the economic development of Nigeria, the investment climate should address the challenges in the manufacturing sector of the country. In addition, the

manufacturers need to focus on research and development. Also, the adoption of modern machinery, equipment and technologies should be given top priority in the sector.

The slow erratic growth of the mining and quarrying output requires well designed public policy to stimulate the sector. The trend of growth of Nigeria's mining and quarrying (solid mineral) sector is probably due to low productive activity over the years due to the government's deliberate policy action. The 1979 and 1999 constitutions of the Federal Republic of Nigeria placed the mines and mining and quarrying activities under the exclusive control of the national government (Federal Republic of Nigeria, 1979:16; 1999:131). Therefore, the deregulation and privatisation of the mining sector is needed for growth and contribution to the economic development of Nigeria. Facilitating the productive activity of the sector can enhance accelerated growth.

Policy interventions to stimulate the sector will require large foreign capital injection, therefore, FDI inflow should be targeted. Creating an enabling business environment in the sector need to emphasis tax incentive packages for the present and potential mining firms. Sustained increase in the public expenditure for social and community services coupled with the social responsibility of the mining companies to the communities will foster peace and productivity in the sector.

All the values of the adjusted coefficients are high, a clear indication that the coefficients are statistically significant. The coefficients in the cointegration estimations in the three models were diagnosed statistically for the presence of autocorrelation and serial correlation, and the results show that there are no serious problems with autocorrelation and serial correlation. Moreover, the diagnostic tests prove that all the models are correctly specified.

Dynamic simulation of results were undertaken to assess the effect of a 10 percent increase dynamic adjustment (shocks) on the relevant exogenous variables. The response properties show positive significant impact due to the shocks. The actual and forecast values of the three models and the forecast amount in billion Naira from 2006 to 2008 were presented graphically.
In Chapter seven, attention is given to the summary of the major findings, the concluding remarks, policy recommendations, the limitations of the study and suggested areas for further study.

CHAPTER SEVEN

SUMMARY OF MAJOR FINDINGS AND POLICY IMPLICATIONS, CONCLUDING REMARKS, LIMITATIONS, RECOMMENDATIONS AND SUGGESTIONS FOR FUTURE WORK

7.1 Summary of major findings and policy implications

This study is structured into seven chapters. The first chapter, the introduction, discusses the background of Nigeria's economic development. The state of the country's development experience is attributed to many factors, most important of which is its inability to take advantage of oil revenue to diversify its productive base. Nigeria has experienced long periods of political problems, governed by corrupt military dictators who did not advance its development agenda in spite of the country's rich renewable and non-renewable resources (Arnold, 1997:124). Three pivotal statement of problem for this study are: Why is Nigeria still an underdeveloped and low-income country?, What should the country do to make rapid economic progress?, How can Nigeria attain a diversified and sustainable economic development and growth?

Chapter Two contains the literature review. It focuses on contemporary and relevant issues in the economic development of developing countries. Included here is an overview of the state and trends of development in Nigeria, a review of the development prospects of Nigeria and a general development model from the newly developed countries of South East Asia. Also discussed is a development model that can be applied to Nigeria. In spite of the development impediments identified in the literature, the country has great prospects since it has undertaken some economic reforms aimed at recovering from ill effects of the past. Some lessons of practical development experience from the East Asian economies are reviewed and development models drawn for Nigeria, especially from Malaysia.

In Chapter Three, the policy framework of the MDGs, efforts and challenges and the role of external partners to complement Nigeria's development activity is discussed. It also assesses the impact of the national economic and development strategy (NEEDS), a medium to long-term plan to enable the country to attain the MDGs by 2015. Most of the economic reform packages identified in the plan, like privatisation of public enterprises, empowering organised private

sector participation in the economy, improving the quality of education and healthcare services, are well articulated.

However, findings based on the World Bank's (2006:82-83) economic and social indicators for Nigeria show that the gross national income per capita of $430 is below the average for sub-Saharan Africa which is (SSA), $600; life expectancy at birth is 44 years, well below the average for the SSA (46 years); maternal mortality rate (per 10,000 live births) is 800, below the average for the SSA (874); HIV prevalent rate (ages 15-49) is 3.9 per cent, below the average for the SSA (6.1): student teacher ratio (primary school) is 36 below the average for the SSA (46); gross primary enrolment, total (of relevant age group) 99 percent above the average for SSA (92); ratio of girls to boys in primary and secondary schools is 88 which is the average for SSA (88); labour force participation rate of females (ages 15-64) is 47 percent, below the average for SSA (63 percent); improved sanitation (of rural population with access) is 48 percent, below the average for SSA (55 percent). The findings show that the millennium development goals (MDGs) poverty and social indicators for Nigeria compare unfavourable with the average for low income country (OECD-ADB, 2006:419).

The analysis of the official development assistance (ODA) shows that Nigeria receives less aid from all donors, DAC countries and multilateral sources between 1999 to 2004 compared with net total flows to two other West African countries namely Burkina Faso and Ghana (OECD-ADB, 2006:566-567). However, FDI inflow into Nigeria within the same period have really increased and far above inflows into Burkina Faso and Ghana. With respect to the country's terms of trade index (2000=100), the country has 125, above average for SSA (121); exports of goods and services (% GDP) is 55 per cent above the average for SSA (35 per cent). Similarly, imports of goods and services (% GDP) is 54 per cent compared with the average for SSA of 40 per cent. While Nigeria's central government revenue (%GDP) is 43 per cent above the average for SSA of 24 per cent, the country's total external debt (% GDP) is 50 per cent, above the average for the SSA 45 per cent (World Bank, 2006:82-83). The outlook for Nigeria's economic and social development shows it is still faced with challenges and has not performed above the average for SSA.

In Chapter Four, the analysis of the relevance of the growth sectors, namely agriculture, manufacturing and mining (solid minerals), and of the growth support sectors, namely education and health care delivery, in Nigeria is discussed. The findings show that the agricultural, manufacturing and mining and quarrying sectors have the potential for creating more jobs and income, reducing poverty and increasing productivity for sustainable economic development in Nigeria. There is a strong linkage between the three important growth sectors in Nigeria.

Three behavioural equations defined in the form of a neoclassical supply-side model for the Nigerian economy are estimated individually. The three equations, one each is specified for the agricultural sector, one for the manufacturing and one for the mining and quarrying sector respectively. The agricultural equation shows that the gross domestic output is strongly and positively related to labour, public capital expenditure, fertiliser, agricultural credit guarantee scheme and the dum86sap which measures the impact of the SAP on agricultural production in Nigeria. An empirical study by Wiebe et al. (2003:433) finds that labour and fertiliser increase the productivity of agriculture, and this finding is consistent with the results of this study. This result also agrees with Meier and Rauch (2005:393), who assert that more people in developing countries need to be encouraged to engage in agricultural production in order to feed the population and eradicate poverty. This findings also shows that Nigerian agriculture is highly labour-intensive. In order to attract more labour into the sector, there should be public education programmes on the importance of agriculture.

Efforts should concentrate on the provision of basic infrastructure and amenities such as electricity, clean and drinkable water, access roads, and other necessities. Electricity supply in the rural areas of Nigeria is 28 per cent higher than the average for SSA (6 per cent); water sources are available in 49 per cent of rural areas of Nigeria, above the average for SSA (45 per cent); but sanitation is available in only 48 per cent of rural areas, below the average for SSA (55 percent) (World Bank, 2006:83).

The results also show a strong positive relationship between fertiliser and the gross output of the sector. This result confirms the Federal Office of Statistics (2004:87) report that shows an

increased performance in agricultural production arising from improvements in fertiliser supply, distribution and utilisation in Nigeria.

The role of the government's involvement in agricultural production is seen from this study's results. The capital expenditure of Nigeria's federal government in the sector has a strong positive relationship with the gross output. By implication, capital expenditure for the agricultural sector needs to be increased in order to increase output. The government should direct this money to the provision of quality and functional primary education, healthcare and irrigation facilities in the country's rural agricultural areas. Policy attention should be given to agricultural research and extension services for training farmers and improving methods of farming. HIV/AIDS intervention programmes must be incorporated in the training of the agricultural workers so that farmers are adequately informed about the prevention of the disease and the treatment and care of the infected.

The coefficient of the interest rate is negatively signed. This shows an inverse relationship between the GDP of agriculture and interest rate. It gives an indication that a robust interest rate regime is in put place for the agricultural sector for ease access to credit. However, the farmers need to reciprocate this incentive through lower food prices and production of surplus commodities for exports.

Furthermore, the agricultural credit guarantee scheme has a strong positive relationship with the gross output of agriculture. According to the Federal Office of Statistics (2004:87), increased performance in agricultural production between 1999 and 2005 is attributable to farmers' increased access to credit. The Federal Office of Statistics (2004) also reports a sustained increase in the capitalisation of the agricultural sector market, resulting in improved agricultural production in Nigeria. This supports empirical evidence that the financial institutions can a play positive role in financing development in the Nigerian agricultural sector.

Nevertheless, dum86sap shows a positive impact on the agricultural production in Nigeria. The results show that the introduction of the structural adjustment programmes (SAP) causes the agricultural production to increase to about 0.30 per cent. The sharp increase in agricultural

production between 1986 and 1990 reflected a favourable response of agricultural production to the SAP measures (Central Bank of Nigeria, 2000:38).

For the manufacturing equation, the results show that labour, FDI and dum86sap representing the SAP are positively related with the GDP of manufacturing. The positive signs of labour and FDI coefficients in the results suggests an urgent need to inject fresh foreign capital and adopt modern technologies in the manufacturing sector. The importance of sustaining research, training and development in the sector is reflected in the positive relationship between the gross output of manufacturing and labour coefficient.

Furthermore, the results of the estimated mining and quarrying equation show that labour and public capital expenditure for the sector are positively related to the value-added GDP of the mining and quarrying. This result is consistent with Onah's (2004:1) report that the development of the solid mineral sector promotes economic activity through investment and employment of resources. Kazilimani, et al. (2003:256) state that about 90 per cent of the active population of mining communities engage in diverse activities such as extraction, transport, processing, trade and businesses established at markets. The estimated results and facts from the literature support the importance of the role the mining and quarrying the in economic development of Nigeria.

However, the dum80s which represents the impact of changes in government policies on the sector shows a weak negative relationship with mining and quarrying gross output within the period under consideration. The negative relationship between the changes in the government policies and the impact on the mining and quarrying sector could perhaps be explained by the fact that the 1979 and 1999 constitutions of the Federal Republic of Nigeria place the mines and the mining and quarrying activities under the control of the national government as mentioned above (Federal Republic of Nigeria, 1979:16; 1999:131). Thus, with the exception of government ministries and agencies, private sector participation mining is extremely difficult in Nigeria. This restriction thus limits the mining or extraction of the solid minerals by private enterprises which could serve as an engine for economic activities and growth in the sector. Limited activity in the mining and quarrying sector could also slow down the contribution of the sector to economic growth and development. It is surprising that the structural adjustment programme launched in 1986 (DUM86SAP) has a negative relationship

with the output growth and development of the mining and quarrying sector. Perhaps the exclusive control of the solid minerals by the federal government within the SAP period contributes to the negative policy impact on the sector.

Mining and quarrying is a growth and development sector in many other African countries, including Botswana, DR Congo, Ghana, Ivory Coast, Namibia and South Africa, and a host of other countries on the continent depend on it to a large extent for domestic and foreign income. According to Hilson (2003:18), the activity of mining is mainly poverty reduction-driven; hence it is a people-initiated and direct poverty-alleviation measure available for any country, with little cost and limited intervention required on the part of the government.

7 .2 Concluding remarks

This study attempts to develop prototype sectoral econometric models that could aid Nigeria to boost its real sectors' productive base, and to make progress towards achieving a high level of economic diversification by harnessing development and growth potentials of the real sectors. Data analysis is used for economic, historical, descriptive and quantitative investigation.

In the 1960s, Nigeria was on par with its fellow oil-producing countries like Malaysia, Indonesia and Singapore in its aspiration to achieve high levels of economic growth and development, but failed to keep the pace. Some of the reasons for this identified in this study include the serious effect of "Dutch disease", reflected in the country's inability to manage and diversify its oil wealth to transform its industrial (manufacturing), agricultural, mining, educational, health and other growth sectors. Nigeria has also had a troubled political history during which the military remained in power for too long.

Under Nigeria's new democratic dispensation, there must be large investment in the growth and support sectors from both domestic and external sources if the country is to attain a high level of economic development and the global growth target of fulfilling the MDGs. With a strong will to become a patriotic civil society, and sufficient wisdom to elect leaders of good will and fairly good knowledge of the country's economy, the people of Nigeria may yet achieve a strong and vibrant economy.

7.3 Limitations of the study

The initial methodology of this study favours the use of a computable general equilibrium (CGE) modelling framework to capture the behaviour and interactions of various macroeconomic variables in the Nigerian economy. But this causes some limitations in the process of seeking and constructing a social accounting matrix (SAM), as none of the research institutions in the country responded to my emails and requests for a SAM for this study. Furthermore, it was difficult in securing flexible system dynamic software like Powersim and Veinsim Models to make up for the CGE model. In the end, because of ambiguous licensing policies and problems with manufacturers, it became obvious to revert to a multivariate cointegration Engle-Yoo three-step econometric methodology.

However, the study is designed to make what appear as complex options feasible. In view of this, the growth models are designed to provide insights into the possible quantitative impacts of domestic and foreign financial resources for the development of the agricultural, manufacturing and mining and quarrying sectors. Of course, a model, no mater how sophisticated, is still an abstraction from reality and as such may not sufficiently embody all the complexities and interactions of the real world. There is no doubt that the model applied in this study is therefore a compromise between the ambition to capture a seemly comprehensive reality and the actual computational feasibility of a foregone CGE model for the Nigerian economy. Notwithstanding this compromise, the model adopted in this study is sufficiently robust to help in responding to the research questions: Why is Nigeria still an underdeveloped and low income country? What should the country do to make rapid economic progress? How can Nigeria attain a diversified and sustainable economic development and growth?

7.4 Policy recommendations

The following tentative recommendations based on the results of the estimated models for the agriculture, manufacturing and mining and quarrying sectors of the Nigerian economy are proposed:

- Improved land distribution and administration, well-managed irrigation and the dissemination of environmentally sound farming methods should be efficiently implemented to ensure environmentally sustainable agricultural production.

- Increased agricultural production in Nigeria should be matched by the engagement of a larger labour force in the rural areas to stem the tide of urban migration.
- The timely provision of fertiliser, seeds and agro-chemical to the farmers at low cost should be encouraged.
- The monetary authorities should encourage rural banking and reward commercial banks that make significant investment to the agricultural sector.
- The monetary authorities should increase the agricultural credit guarantee scheme from 75 per cent to 85 per cent to enhance credit delivery by banks to farmers and to ensure that farmers reciprocate the impetus by reducing the prices of food products.
- Modern and tested agricultural machinery and equipment that will reduce drudgery and enhance productivity should be encouraged.
- Capital expenditure for the agricultural sector should be increased to encourage research and development, HIV/AIDS intervention programmes, adequate housing and rural electricity projects and other amenities which rural farmers will perceive as modernization
- Public expenditure for social and community services should be increased, especially in the rural agricultural areas. This will ensure good quality of health care and service delivery, and free compulsory education for the poor.
- Sustained efforts are needed to create a conducive economic environment to ensure the inflow of local and foreign private investment into the agricultural sector.
- Policy strategies and incentives for industrialisation in Nigeria should give priority to creating a conducive investment climate for both local and foreign enterprises. Basic physical infrastructure and a robust tax regime must be created and land for industrial estates mapped out and efficiently allocated.
- Manufacturing enterprises in Nigeria should constantly update their plants through the injection fresh capital, as this will enable them to boost productivity and produce high quality goods of international standard.
- The investment effort in education and training must be strengthened to sustain the level of human capital development and ensure high productivity among the labour force in Nigeria.
- The exploitation of minerals requires large capital outlay; therefore, the government, especially at the state level, should give financial support to local enterprises engaged in mining activities.

- Increased investment and employment of more active labour in large-medium and small-scale mining should be encouraged to expand economic activities and impact positively on the poverty reduction campaign in Nigeria.

7.5 Suggestions for future work

The scope of this study can be enlarged in different directions, one of which could be to apply alternative functional Cobb-Douglas production functions and CES production functions to the data. Moreover, the utilisation of a CGE model to assess the policy impact of the growth sectors in Nigeria could be considered.

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APPENDIX 1. VARIABLES LIST

Series	Natural logarithms	Variable name	Data source
fert	Lnrfert	Fertiliser	African development indicators. World Bank database 1980 and 2006
labour	lnrlabour force	Total labour force	African development indicators. World Bank database 1980 and 2006
aglabor	Lnraglabor	Labour in agriculture	African development Bank 1996; 2000 and 2005. pp A-51, 227 and 261 respectively. FAO. 2006 p124
manlabor	lnrmanlabor	Labour in industry/manufacturing	African development Bank 1996; 2000 and 2005. pp A-51, 227 and 261 respectively. FAO. 2006 p124
labormine	lnrlabormine	Proxy for labour in the industry/manufacturing	African development Bank 1996; 2000 and 2005. pp A-51, 227 and 261 respectively. FAO. 2006 p124
Export	lnrexport	Exports of non-oil commodities (at local currency)	African development indicators. World Bank database 1980 and 2006
Manuf	lnrmanuf	Value-added Gross domestic product at constant prices (local currency)	African development indicators. World Bank database 1980 and 2006
mingua	Lnrrminqua	Value-added Gross domestic product at constant prices (local currency)	African development indicators. World Bank database 1980 and 2006
Agr	Lnragr	Gross domestic product at 1984 constant factor cost	Central Bank of Nigeria Statistical Bulletins 1994 and 2005
acgs	Lnacgs	Agricultural credit guarantee scheme	Central Bank of Nigeria Statistical Bulletins 1994 and 2005
mancap	lnrmancap	Public capital expenditure for the manufacturing sector	Central Bank of Nigeria Statistical Bulletins 1994 and 2005
agcap	Lnragcap	Public capital expenditure for agriculture	Central Bank of Nigeria Statistical Bulletins 1994 and 2005
socoms	lnrsocoms	Annual budget expenditure for social and community services	Central Bank of Nigeria statistical Bulletin 1994 and 2005
infrast	lnrinfrast	Capital expenditure for transport, communication, and others	Central Bank of Nigeria statistical Bulletin 1994 and 2005
fdim	Lnrfdim	Foreign direct investment in manufacturing	Central Bank of Nigeria statistical Bulletin 1994 and 2005
ri	Ri	Interest regime for the agricultural sector	Central Bank of Nigeria statistical Bulletin 1994 and 2005
exch	lnrexch	Naira/dollar exchange rate	Central Bank of Nigeria statistical Bulletin 1994 and 2005
mincap	lnrmincap	Public capital expenditure for the mining and quarrying sector	Central Bank of Nigeria statistical Bulletin 1994 and 2005

APPENDIX 2. STOCHASTIC FUNCTIONS

Agricultural function is derived from the real GDP at 1984 constant factor cost, while manufacturing and mining and quarrying functions derived from value added constant factor costs.

Potential agricultural output (**1**) (with public capital expenditure for agriculture, estimated labour force in agriculture, fertiliser, interest rates, agricultural credit guarantee scheme and dum86sap as the main factor inputs)

residual = lnragr(-1) - (0.1440909687 * LNRAGCAP(-1) + 0.2797782855 * LNRFERT(-1) - 0.001384701248 * RI(-1) + 0.5114588809 * LNRAGLABOR(-1) + 0.297485601 * DUM86SAP(-1) + 0.03982486965 * LNRACGS(-1))

LNRAGR = - 0.2155072748 * RESIDUAL + 0.07014675586 * D(LNRAGCAP) + 0.07343944949 * D(LNRACGS(-2)) + lnragr(-1)

agr = exp(lnragr)

Manufacturing potential output (**2**) (with estimated labour force in industry/manufacturing, foreign direct investment, Naira/US dollar exchange rate and dum86sap as the main factor inputs).

Resman = lnrmanuf(-1) - (0.38782 * LNRMANLABOR(-1) + 0.119922 * LNRFDIM(-1) - 0.039689 * LNREXCH(-1) + 0.123274 * DUM86SAP(-1) + 16.26863)

LNRMANUF = - 0.7861858287 * RESMAN + 0.2960676955 * D(LNRFDIM(-2)) - 0.03580527574 * D(LNRMANCAP) + 0.2927747087 * D(LNRMANLABOR(-1)) + 0.05960053829 * D(LNRINFRAST) - 0.2371806427 * D(LNREXPORT) - 0.3849876623 * D(LNREXPORT(-1)) + lnrmanuf(-1)

manuf = exp(lnrmanuf)

Mining and quarrying potential output (**3**) (with public capital expenditure for mining and quarrying, labour force in mining, dum86sap, and dum80s as the main factor inputs).

Residualmin = lnrminqua(-1) - (0.033003 * lnrmincap(-1) + 0.354285 * LNRLABORMINE(-1) - 0.321980 * DUM86SAP(-1) - 0.242170 * DUM80S(-1) + 19.27908)

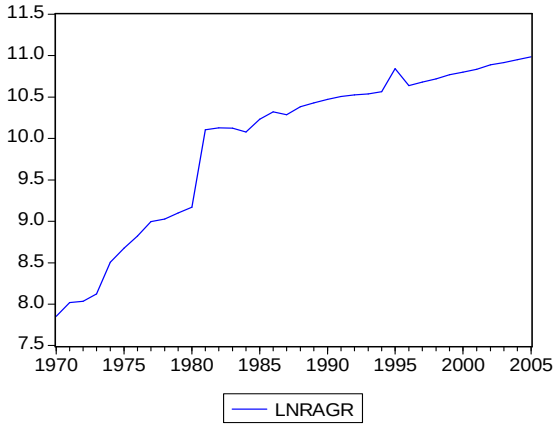
LNRMINQUA = - 0.3174208133 * RESIDUALMIN + 0.03981870782 * D(LNRSOCOMS) + 0.5721387958 * D(LNREXPORT) + lnrminqua(-1)

minqua = exp(lnrminqua)

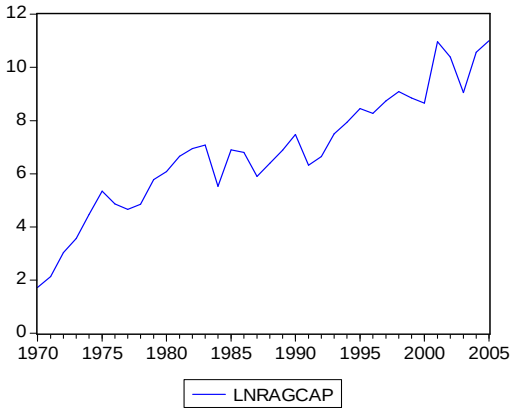
APPENDIX 3. GRAPHICAL REPRSENTATION OF THE DATA

Non-stationary agricultural data series 1970-2005

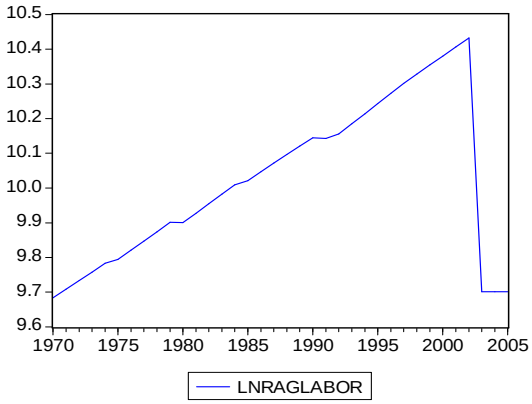
Agricultural GDP at 1984 constant factor cost



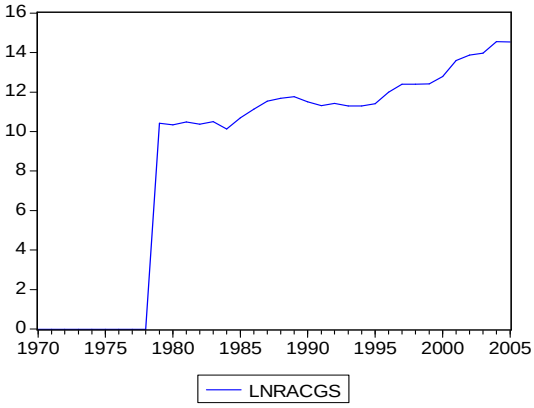
Public capital expenditure for agriculture



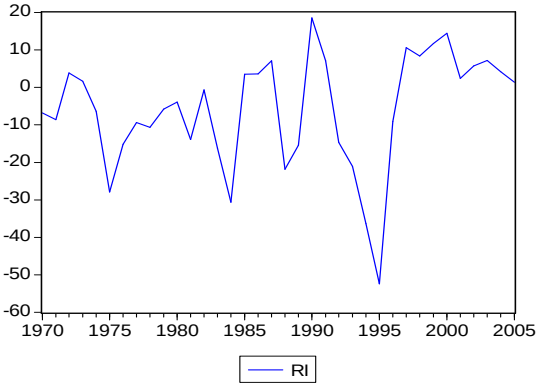
Estimated labour forece in agriculture



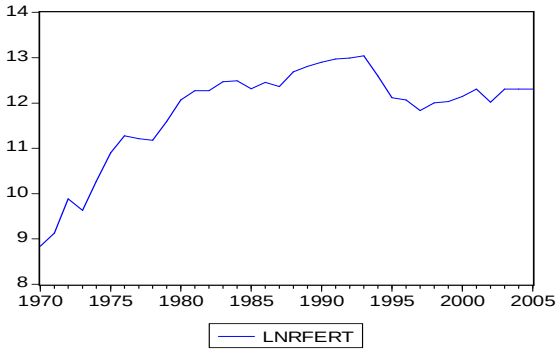
agricultural credit guarantee scheme



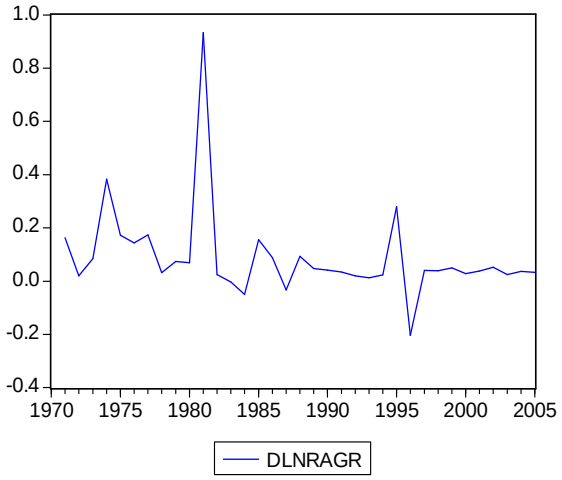
Real interest rates

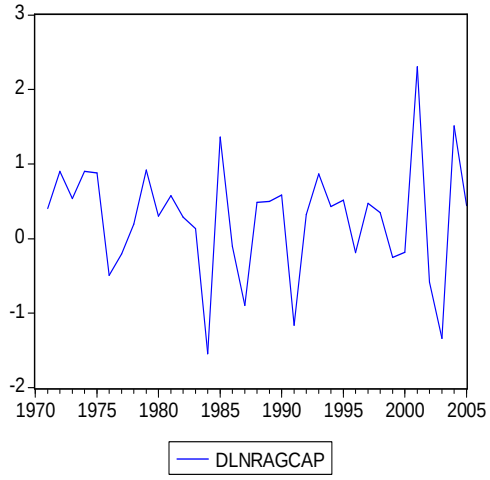


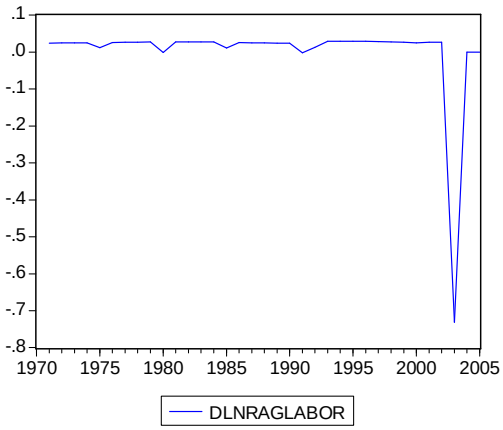
real fertiliser

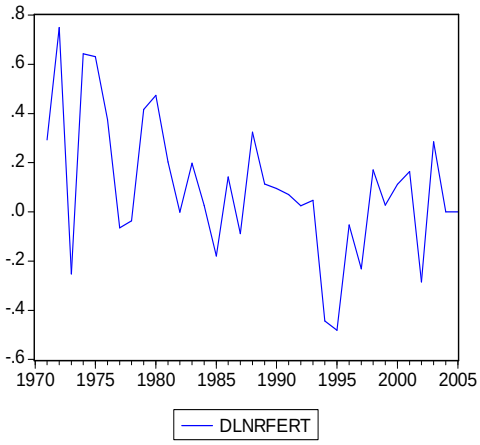


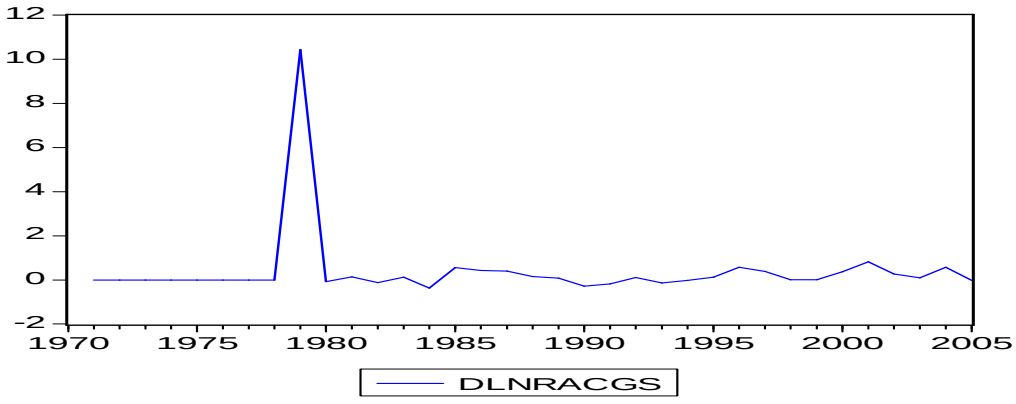
First difference agricultural data series 1970-2005





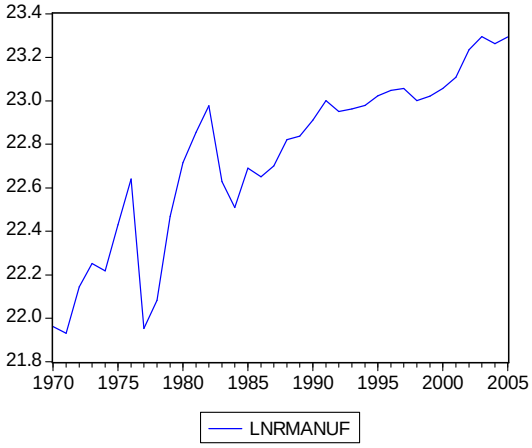




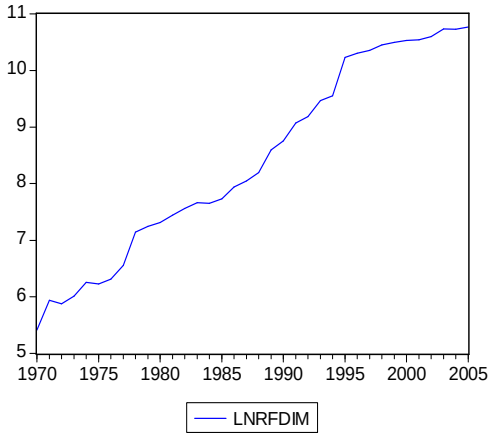


Non stationary manufacturing data series 1970-2005

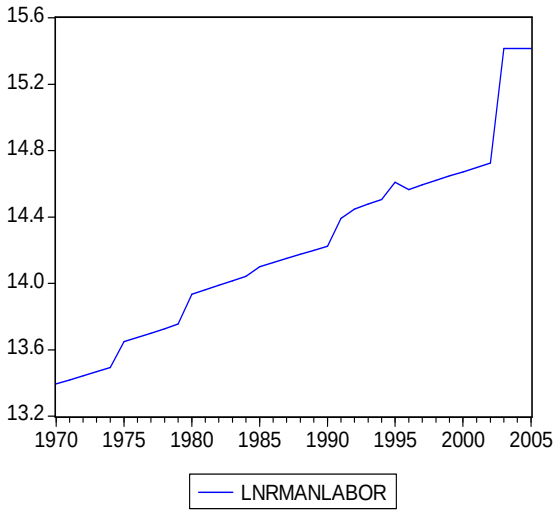
Manufacturing value-added GDP at constant factor cost



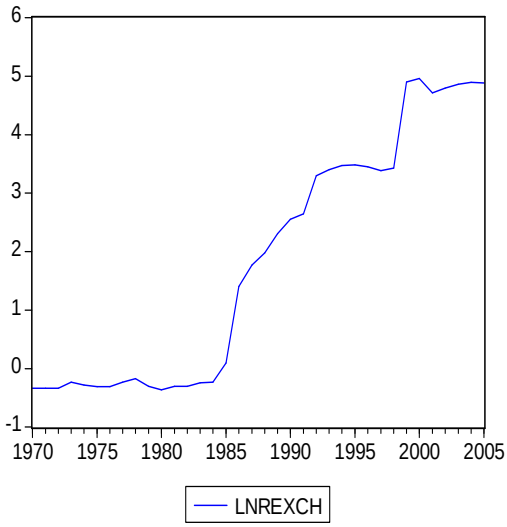
FDI into manufacturing



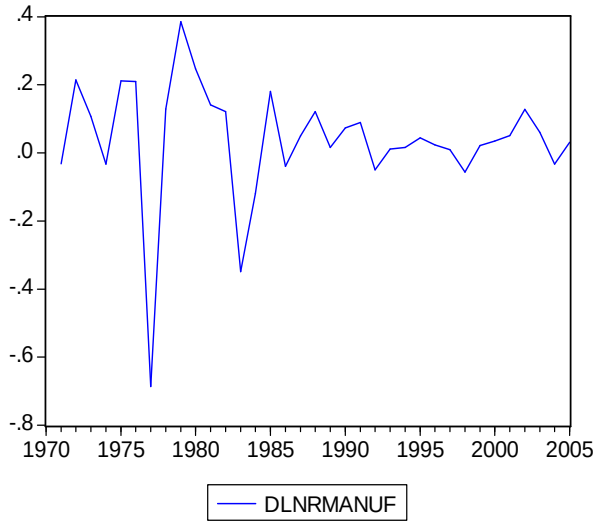
Estimated labour force in manufacturing

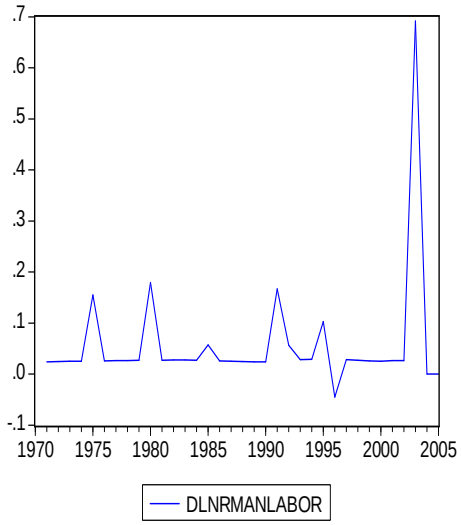


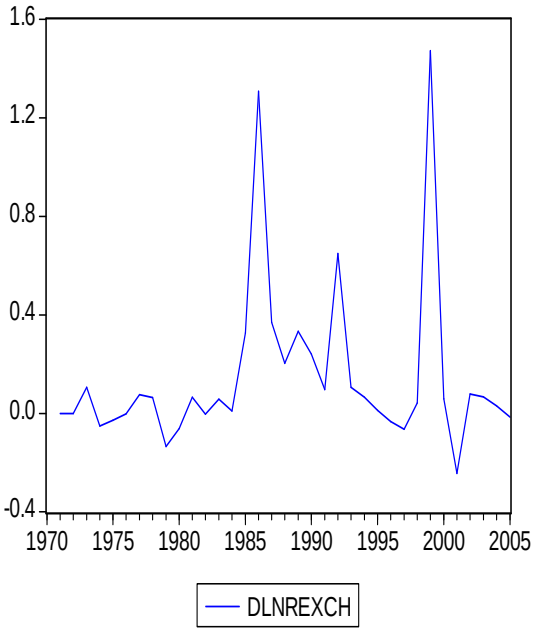
real Naira/US dollar exchange rate

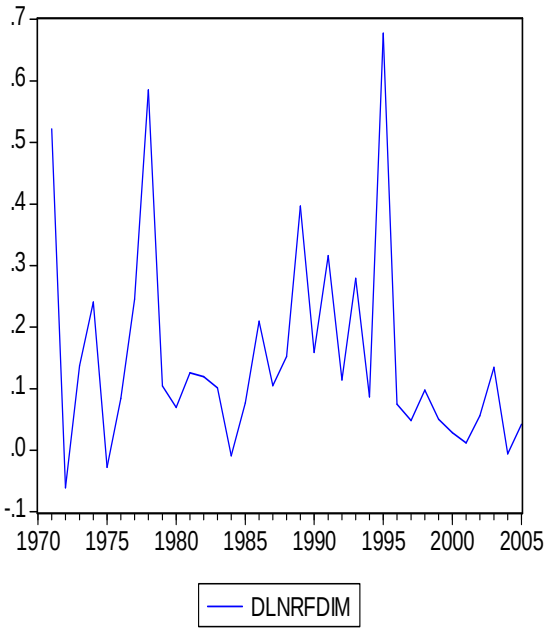


First difference manufacturing data series 1970-2005



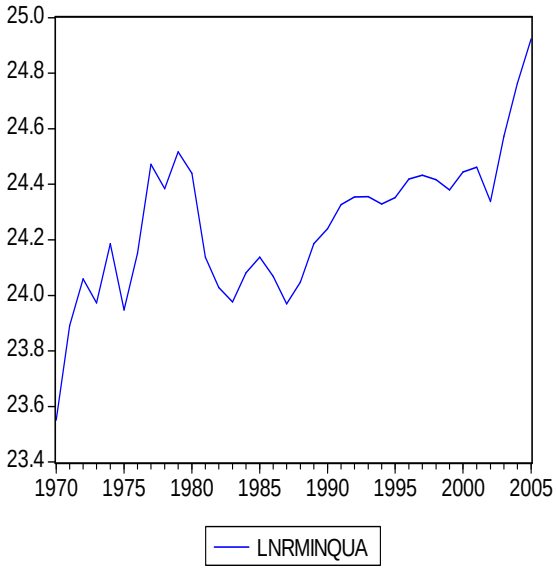




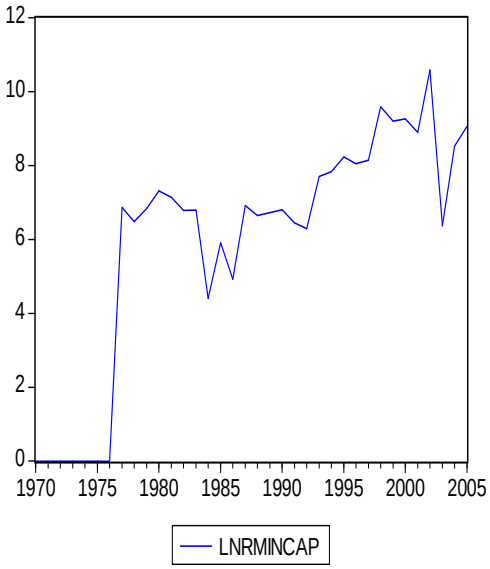


Non-stationary mining and quarrying data series 1970-2005

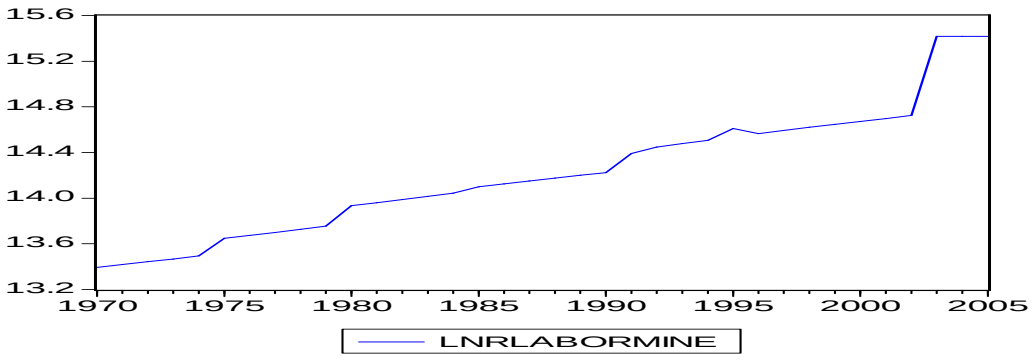
Mining and quarrying value-added GDP



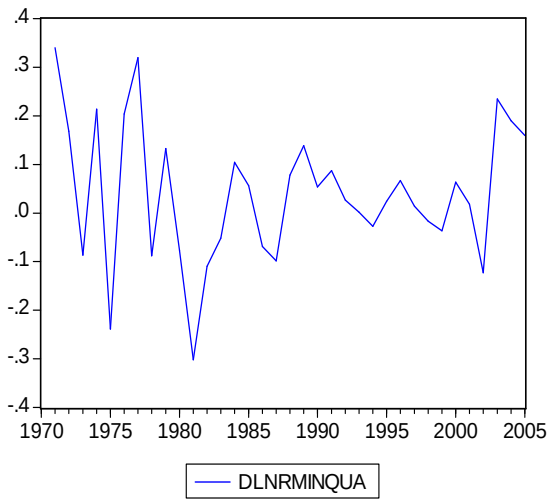
public capital expenditure for mining and quarrying

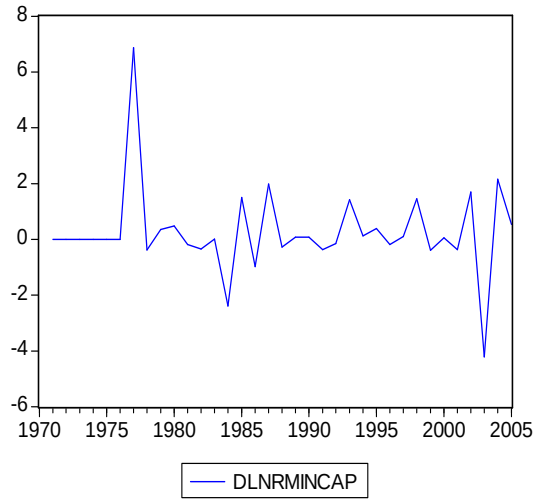


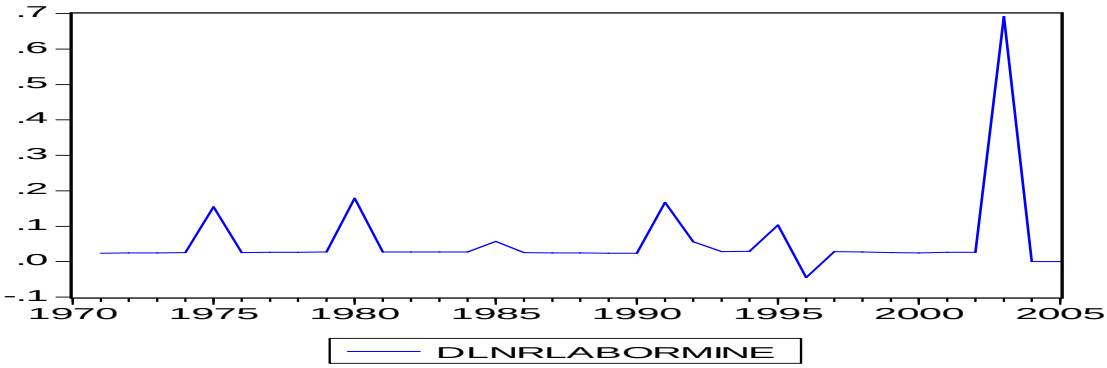
Estimated labour force in mining and quarrying



First difference mining and quarrying data series 1970-2005







APPENDIX 4 Table for Augmented Dickey-Fuller test for non-stationarity levels, 1970-2005

Series	Model	Lags	$\tau_\tau, \tau_\mu, \tau$	Φ_3, Φ_1
lnragr	Constant Trend None	0 (insignificant) 0 (insignificant) 0 (insignificant)	-2.34040 -1.476349 2.732508	5.477521 2.905361
lnragcap	Constant Trend None	0 (insignificant) 0 (insignificant) 0 (insignificant)	-1.475509 -3.823311 1.404106	2.177127 7.391731**
lnraglabor	Constant Trend None	0 (insignificant) 0 (insignificant) 0 (insignificant)	-1.705249 -0.813685 -0.014382	2.907873 1.559643
lnrfert	Constant Trend None	3 significant 0 (insignificant) 0 (insignificant)	-3.900323 -2.318878 1.741312	15.21252*** 7.753836
ri	Constant Trend None	3 significant 3 significant 3 significant	-3.373864 -3.982018 -3.144443*	11.38296** 5.318072**
Lnragcgs	Constant Trend None	0 (insignificant) 0 (insignificant) 0 (insignificant)	-1.431725 -1.869319 0.459464	2.049837 1.908611
lnrmanuf	Constant Trend None	0 (insignificant) 0 (significant) 0 (insignificant)	-1.746080 -3.686504 1.241909	3.048796 6.894815**
lnrmanlabor	Constant Trend None	0 (insignificant) 0 (insignificant) 0 (insignificant)	0.406733 -2.208321 2.887661	0.165432 2.938254
lnrfdim	Constant Trend None	0 (insignificant) 0 (insignificant) 0 (insignificant)	-1.356433 -1.356125 4.728166	1.83991 1.873561
lnrexck	Constant Trend None	0 (insignificant) 0 (insignificant) 0 (insignificant)	0.053379 -2.153258 1.613585	0.003849 2.617326
lnrminqua	Constant Trend None	0 (insignificant) 0 (significant) 0 (insignificant)	-1,967122 -2.672951 1.608035	3.869571 3.577254
lnrmincap	Constant Trend None	0 (insignificant) 0 (insignificant) 0 (insignificant)	-1.980478 -2.752928 0.069169	3.922291 3.956783
lnrlabormine	Constant Trend None	0 (insignificant) 0 (insignificant) 0 (insignificant)	0.406733 -2.208321 2.887661	0.165432 2.938254

*/**/*** Significant at a 10 per cent/ 5 per cent/ 1 per cent level

APPENDIX 5 Table A Augmented Dickey-Fuller test for first differences, 1970-2005

Series	Model	Lags	$\tau_\tau, \tau_\mu, \tau$	Φ_3, Φ_1
▲lnragr	Constant Trend None	1 significant 1 significant 1 significant	-5.960818 -6.532571 -4.920182***	35.53135*** 21.33776***
▲lnragcap	Constant Trend None	1 significant 1 significant 1 significant	-7.087197 -7.04474 -6.320031	35.13822*** 23.25687***
▲lnraglabor	Constant Trend None	3 significant 3 significant 3 significant	-5.683621 -6.044055 -5.771820	32.30354*** 18.26687***
▲lnrfert	Constant Trend None	3 significant 3 significant 3 significant	-5.650325 -4.389923 -3.373864	21.86614*** 15.96926***
▲ri	Constant Trend None	1 significant 1 significant 1 significant	-5.856863 -5.793483. -5.956091	21.53628*** 14.04000***
▲Lnragcgs	Constant Trend None	1 significant 1 significant 1 significant	-5.988065 -5.96996 -5.732534	35.85692*** 17.82575***
▲lnrmanuf	Constant Trend None	3 (significant) 3 (significant) 3 (significant)	-6.034121 -5.956860 -5.629482	22.31241*** 14.50408***
▲lnrmanlabor	Constant Trend None	3 (significant) 3 (significant) 3 (significant)	-6.327661 -6.413398 -5.160025	40.03930*** 20,59169
▲lnrfdim	Constant Trend None	3 (significant) 3 (significant) 3 (significant)	-6.408246 -6.357186 -2.040877	41.06562*** 20.32569**
▲lnrexck	Constant Trend None	3 (significant) 3 (significant) 3 (significant)	-4.857973 -4.818576 -4.265577	23.59990** 11.64471**
▲lnrmanuf	Constant Trend None	3 (significant) 3 (significant) 3 (significant)	-6.034121 -5.956860 -5.629482	22.31241*** 14.50408***
▲lnrmanlabor	Constant Trend None	3 (significant) 3 (significant) 3 (significant)	-6.327661 -6.413398 -5.160025	40.03930*** 20,59169
▲lnrfdim	Constant Trend None	3 (significant) 3 (significant) 3 (significant)	-6.408246 -6.357186 -2.040877	41.06562*** 20.32569**
▲lnrexck	Constant Trend None	3 (significant) 3 (significant) 3 (significant)	-4.857973 -4.818576 -4.265577	23.59990** 11.64471**

▲lnrminqua	Constant Trend None	3 (significant) 3 (significant) 3 (significant)	-5.746745 -5.640607 -5.591637	33.02508*** 16.345718***
▲lnrmincap	Constant Trend None	3 (significant) 3 (significant) 3 (significant)	-7.913452 -7.917237 -7.738629	62.62272*** 31.34133***
▲lnrlabormine	Constant Trend None	3 (significant) 3 (significant) 3 (significant)	-6.327661 -6.413339 -5.160025	40.03930*** 20.59169***

*/**/*** Significant at a 10 per cent/ 5 per cent/ 1 per cent level.