

Foreign Direct Investment in Nigeria: Evidence from Time Series Data

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This paper examines the relationship between foreign direct investment (FDI) in Nigeria and some macroeconomic variables. The preliminary empirical results, covering the period 1970-1994, suggest that high debt service and low credit ratings discourage FDI. FDI is also sensitive to real per capita income and low rates of inflation.

I. INTRODUCTION

In her attempt to accelerate growth and development, Nigeria has always encouraged foreign private investment through the introduction of incentive packages. This is based on the perception that domestic resource gap can be partly filled through foreign direct investment. Foreign direct investment (FDI) makes available foreign exchange which, all things being equal, should increase the country's capacity to import. The other benefits of FDI include:

- (i) the provision of managerial knowledge and skills including organisational competence and access to foreign markets,
- (ii) the transfer of technology from developed economies, and
- (iii) the provision of an array of goods and services to residents in the recipient country.

The economic history of Nigeria reveals the continuous inflow of FDI. In the early period, FDI was in the area of raw materials and extractive industries. The post-war period indicated investment pattern like the early period except for the

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introduction of investment in import-substituting industries and recently investment in manufactures and semi-manufactures for export. FDI can be found in every sector of the Nigerian economy though the degree of involvement differs across and within sectors.

Before the structural adjustment period of 1986, especially during the oil boom era, the Nigerian government theoretically encouraged FDI but in practice there were series of policies and pronouncements that served as disincentives to FDI. For example, the Indigenisation Decree of 1972 reserved exclusively certain ventures for Nigerians. More importantly, controlled interest rate and fixed exchange rate regimes as well as a restricted trade policy during the period provided wrong signals to potential investors. Nonetheless, government with revenue from oil, participated actively with foreign partners and domestic entrepreneurs in the establishment, ownership and control of industries.

The crisis in the global oil market of 1981 coupled with ad hoc and inconsistent macroeconomic policies plunged the Nigerian economy into a recession. By 1986, despite the various austerity and stabilization measures, the economy had entered a recessionary phase. The existing stop gap measures (tax exemptions, reduced tariffs, etc.) to lure FDI could not revamp the economy. The adjustment program of 1986, which deregulated the economy, was supposed to encourage FDI. The introduction of the New Industrial Policy in 1989 with a series of packages and incentives directed at wooing foreign investors is still in place. The present regime (1993 – 1996) established the Nigerian Investment Promotion Commission (NIPC) with a view to stimulating FDI. Yet the economy is still characterised by declining productivity, high rates of inflation and unemployment, a volatile exchange rate regime, and balance of payments disequilibrium.

This paper discusses the relationship between foreign direct investment (FDI) and some macroeconomic variables by examining available time series data for the period 1970 – 1994. Because the Nigerian economy is oil-driven, FDI is further decomposed into oil and non-oil FDI, respectively. Other issues dealing with the trend, components, structure and origin of foreign private investment are discussed fully in Ekpo (1996d).

The paper is organised as follows: following the introduction, section II looks at the performance of the Nigerian economy and foreign private investment. Section III discusses some theoretical issues while in section IV we present the estimated results. We conclude the paper in section V.

II. PERFORMANCE OF THE NIGERIAN ECONOMY AND FOREIGN DIRECT INVESTMENT

Table 1 below summarises the performance of the economy for selected years. The rate of inflation which was 6 per cent in 1960 rose to double digit (13.8 per

cent) in 1970. By 1975, the inflation rate stood at almost 34 per cent. Throughout the period of structural adjustment, the rate of inflation remained quite high, averaging about 55 per cent. The rate of unemployment appears disturbing because apart from 1979, 1980 and 1985, the economy has been at full-employment output. It must, however, be noted that few job applicants use the labour exchanges. In addition, the informal sector absorbs most of the unemployed not covered by official statistics.

From 1987, deficit/GDP ratio remained high, exceeding the conventional 3 – 5 per cent. By 1995, deficit/GDP ratio had reduced to .6 per cent due partly to expenditure control and revenue mobilisation efforts. The discomfort index, which is high throughout the period except for 1960, confirms partly that the economy is not performing satisfactorily.

The growth in GDP was impressive during the oil boom period of the 1970s. Perhaps, one of the positive impact of the SAP was to reverse the negative growth of GDP in the earlier 1990s. Investment-GDP remained quite low from 1987 to 1994 while capacity utilisation which was 74 per cent in 1970 and 1971 stood below 40 per cent in the 1990s. In the structural adjustment period, capacity utilisation was around 45 per cent. The balance of payments was in disequilibrium during most of the period. The selected important economic indicators demonstrate that the economic fundamentals in the economy were moving in the wrong directions. Thus, deliberate government policies were needed to encourage and stimulate both foreign and domestic investment. Appendix 1 provides a summary of foreign private investment policies from the colonial period to the post-structural adjustment era. The detailed description of these policies is in Ekpo (1996d).

For the period 1970 – 1975 total foreign direct investment grew by 5.4 per cent. It declined to 0.1 per cent between 1976 and 1981 and registered a growth rate of 1.5 per cent for the period 1986 – 1994. For the same periods, oil FDI grew by 20.2 per cent, –6.1 per cent and 30 per cent, respectively. The decline for the period 1976 – 1981 can be attributable to both the fall in oil prices in 1979 and the uncertainty created in the oil industry as a result of the nationalisation of British Petroleum. Non-oil FDI grew by .7 per cent during the period 1970 – 75; 4 per cent between 1976 and 1981 and showed a remarkable growth of 22.5 per cent during the adjustment period of 1986 – 1994.

III. THEORETICAL CONSIDERATIONS

The flow of foreign private investment (FPI) or capital was the earliest type of resource transfer to developing economies and has been in existence before the post-war emergence of official development assistance (ODA) or the more recent effort to transfer resources through preferences.

FPI has two major components: portfolio investment and direct investment. Portfolio investment is in the form of equity capital, either share or bond holding, in ventures in developing countries. The equity capital thus empowers its owner to flow dividends. On the other hand, direct foreign investment enables the foreigner to own the physical productive assets which he operates directly. This flow of resources is essentially carried out by large multinational or transnational corporations with headquarters in the developed nations. Flow of financial capital is by private international banks.

It is often argued that there is "no unique established theory of foreign direct investment. Instead, there are various hypotheses emphasizing different macroeconomic and microeconomic factors that are likely to have an effect on foreign direct investment" (Khan, 1990, p.282). Thus, there are several factors influencing foreign direct investment. Any effort to discuss conceptual issues on FDI must be aware of sweeping generalisations.

The factors influencing foreign direct investment include: size of domestic market, output, income per capita, fiscal deficits, openness, debt service, inflation, exchange rate, uncertainty, credibility, government expenditures as well as institutional and political factors. A detailed discussion on how each factor relates to FDI is in Serven and Solimano, 1992.

For Nigeria, the factors affecting FDI include: return on investment in the rest of the world, domestic interest rates, rate of inflation, debt service, per capita income, ratio of world oil prices to world price of industrial countries' manufactured goods, credit rating and political stability or instability. It is crucial to address the problems of credibility and policy reversals if policy makers wish to encourage FDI into the country.

The credibility factor is not a theoretical matter. In fact, many developing countries have had policy reversals especially during adjustment. Nigeria is a recent example when the present military regime reversed the policy on deregulation and went back to a semi-controlled regime in November, 1993. Then from January 1995, the regime embarked on what it labelled a "guided deregulated economy." Such signals will not attract foreign investors because of the loss of confidence on how the economy is managed.

There is the need to stress the importance of institutional factors in influencing FDI. Inadequate administration of justice, deficient property rights, incessant political intrusion in private business, corruption, lack of transparency and accountability as well as excessive bureaucracy are serious constraints to FDI. The government must ensure that private contracts are enforced and the judiciary system functions properly. Pfefferman and Madarassy (1992) argue that the quality of institutions in developing countries can influence FDI. Strongest responses occur when investors are convinced that improvements in institutions will endure. They further contend that positive responses by investors take place in countries with an export-oriented economy, a convertible currency, a large-scale privatisation

program, and growing links with trading blocs, which tend to reduce the likelihood of policy reversals by governments.

More often, issues of credibility and policy reversals hinge on the political system and its volatility, especially in developing countries. There is the general notion that political instability will not only result in capital flight but will also discourage foreign private investment. However, the political variable is not easy to measure or capture. Edwards (1990) used the degree of political instability and the degree of political polarization and violence. *A priori*, an increase in both of these variables will tend to have negative effects on measures of foreign direct investment. Accordingly,

" . . . results suggest quite clearly that political variables (political instability and political polarization) have played a significant role in determining FDI. They also show that these political variables have not been the most important ones for explaining these flows. In fact, the analysis of standardised estimates clearly show that political considerations have been the least important of all the considered factors in determining FDI" (Edwards, 1990, p.277).

The above inference cannot be generalised to all countries in SSA. However, it is important to note that Nigeria has experienced different political regimes. Each regime, military or civilian, has had its own period of stability and instability. For example, the aftermath of the June 12, 1993 election result (which was annulled) could affect the decisions of potential foreign investors. Another interesting issue is whether one can consider stability under a military system to be satisfactory. Thus, it is not that easy to quantitatively capture the political variable.

The above discussion on investment theorising is by no means exhaustive. The application of theoretical investment models has relied mainly on stating different hypotheses about private investment behaviour (Jorgenson (1970), Ekpo (1987), Green and Villaneuva (1991), Oshikoya (1994).

The theoretical issues can be summarised in the following equation:

$$FDI/Y = f(Rw, rd, Wop/Wom, Inf, Debt, Ycap, Pol, Cr,) \quad (1)$$

where

- FDI = foreign direct investment,
- Y = gross domestic product in constant prices,
- Rw = return on investment in the rest of the world proxied by long-term US interest rates.
- Rd = domestic interest rates,
- Wop = world oil prices,
- Wom = world price of industrial countries' manufactured goods,
- Inf = rate of inflation,

- Debt = debt service ratio,
 Ycap = income per capita,
 Pol = political stability dummy:
 1 = military regime and turbulent years: 0 = otherwise, and
 Cr = Credit ratings.

Equation 1 was further segmented into FDI_{oil}/Y and FDI_{non-oil}/Y, respectively.

IV. REGRESSION RESULTS

To investigate the relationship between foreign direct investment and macroeconomic variables in Nigeria, we estimated equation 1. Given the small size of our sample (1970 – 1994), the model was estimated by ordinary least squares (OLS). In the case of small sample, the OLS method is less sensitive to misspecification errors than simultaneous estimation approaches¹.

The data for the study came from the Central Bank of Nigeria, the Federal Office of Statistics, the International Monetary Fund, the World Bank and the Institutional Investors Magazine.

Tables 2, 3, and 4 show the results of the estimated equation. It is important to note that the model explains about 80 per cent of the variance in FDI in Nigeria for the period 1970 – 1994. From Table 3, the rate of inflation has the correct sign though it is statistically not significant. It should be noted that the rate of inflation is also a proxy for measuring macroeconomic stability.

The coefficient of the ratio of world oil price relative to world price of industrial countries' manufactured goods (wo/m) is positive and statistically significant when added in equation 2 of Table 2. An increase in that ratio will enhance FDI in Nigeria.

The political stability variable shows interesting results. It partially explains that foreign investors are wary of military regimes. This variable was included to capture uncertainty. The coefficients are properly signed but statistically not significant except in equation 3 where it is significant at the 10 per cent level.

The debt service ratio and income per capita have the expected signs. An increase in the debt service ratio will reduce foreign direct investment. A one percentage increase in the debt service ratio or debt overhang will decrease FDI also by .1 per cent. The coefficient of this variable is negative and statistically significant in all the specifications.

According to the theories of FDI, developed countries will tend to invest in poorer countries that have a higher rate of return. In Nigeria, the capital market is not well developed thus the return on capital is being proxied by real per capita income. Hence, lower real per capita income will attract a higher share of FDI. The coefficient of income per capita is negative and statistically significant. A one percent decrease in per capita income will attract about a 1.3 per cent increase in FDI. This

confirms the findings of Edwards (1990). This result could also be interpreted differently in the sense that increased real income per capita in an economy could send the right signal to foreign investors indicating that the people have enough purchasing power to buy whatever is being produced. In addition, it could imply that the economy is growing in the right direction. Hence, the estimated results may decrease FDI.

Another important variable is the domestic interest rate (rd). The coefficient is not as expected. Apart from the fact that for Nigeria interest rates were controlled for a very long time, the theoretical literature on the role of interest rate on private investment is ambiguous. The financial repression literature argues that positive real interest rates will encourage savings and therefore stimulate higher investment and growth. This is anchored on the classical assumption that savings precede investment. On the other hand, Keynesian theory maintains that high interest rate discourages private investment. In Nigeria, where the oil sector dominates, the interest rate variable may not be crucial. Studies have shown that in Nigeria, savings do not respond to interest rate but to income.

Inflation, return on investment in the rest of the world, real per capita income and political stability explain above 80 per cent of the variation in oil foreign direct investment (see Table 4). All the variables have the correct signs but are not statistically significant except for domestic interest rate which has a positive coefficient and is statistically significant.

The results for the non-oil FDI are shown in Table 4. The rate of inflation, world interest rates, domestic interest rate and debt service variables are properly signed and statistically significant except for inflation. When we dropped both income per capita and domestic real interest rates, they became correctly signed in the estimation of equation 3 with per capita being statistically significant. The results also show that negative interest rates in the rest of the world (Rw) will result in higher capital flows into Nigeria, all things being equal. The coefficient of the political variable further confirms that FDI is sensitive to the political situation in an economy like Nigeria.

There are several ways of capturing macroeconomic uncertainty and policy credibility. There are several sources of uncertainty. Uncertainty can be associated with the movement of macroeconomic variables, policy reversals and politically motivated behaviour. These issues were examined in the theoretical section. For the sake of simplicity, the debt service ratio can capture policy reversals and debt overhang. The level of inflation can be a proxy for some macroeconomic uncertainty while the political dummy can represent periods of political turbulence. In the estimation results, these variables possessed the appropriate signs, indicating that uncertainty and policy reversals resulted in lower FDI in Nigeria.

In the results below, we included a credit rating variable which is often reported by Institutional Investor Magazine. The rating is based on information provided by leading international banks. Banks are asked to grade each of the countries on

a scale of zero to 100, with zero representing the least creditworthy countries and 100 representing those with the least chance of default. The individual responses are weighted using an institutional investor formula that gives more weight to responses from banks with greater worldwide exposure and more sophisticated country-analysis systems.

In Table 5, we compare Nigeria's credit ratings with the rest of the world and Africa. Between 1979 and 1982, Nigeria's rating was higher than the global average. From 1983 to 1995, Nigeria's rating was less than the global average. Compared to Africa, Nigeria's rating exceeded the regional average except for 1989, 1990 as well as from 1993 – 1995.

The credit rating is included in all the equations for the period 1979 to 1994. Its coefficient did not come out as expected in the total FDI and oil FDI, respectively. In both equations 2 and 3, the credit rating is negatively related to FDI. The ratings may be correlated with other variables like world interest rates, debt service, etc.

However, for the non-oil FDI, the credit rating variable has the expected coefficient but not statistically significant. It is positively related to non-oil FDI. A one percent increase in the country's credit rating will result in a one percent increase in non-oil FDI. All other variables have the expected signs.

What is striking in all these results is the importance of reducing the debt service or debt overhang. Almost all the estimation results show that a reduction in the debt service ratio will enhance FDI in the country.

V. CONCLUSION

We have examined the relationship(s) between foreign direct investment and some macroeconomic variables in the Nigerian economy for the period 1970 – 1994. The results show that the political regime, real income per capita, rate of inflation, world interest rate, credit rating, and debt service explain the variance of FDI in Nigeria. The implications derived from the results suggest that government must put in place appropriate policies to reduce the rate of inflation, reduce the debt service, and increase income per capita if FDI is to be attracted into the country. The impact of these policies will be to improve the country's credit rating with the inherent positive multiplier effects on the economy.

Table 2
OLS Estimation Results for Total Foreign Direct Investment in
Nigeria 1970 – 1994

Parameters	Eqn. 1	Eqn. 2	Eqn. 3
Constant	-5.813 (-.465)	7.510 (1.002)	-4.759 (-4.182)
Inf	-.012 (-.379)	- (1.120)	.036
Rw	.090 (.400)	-.086 (-.032)	- -
Wo/m	-	5.260 (.597)	-
Debt	-1.043 (-2.17)*	-.814 (-1.74)	-.964 (-2.121)
Ycap	-.730 (-.789)	-1.650 (-3.060)	-1.880 (-3.172)
Pol	-1.139	-.861	-2.086**
rd	3.554** (1.500)	(-.427) -	(1.852) -
R ²	.84	.833	.83
D.W	2.42	2.70	2.80
F-test	14.48	15.80	19.94

The dependent variable is the log of foreign direct investment to GDP. The figures in parenthesis are t-statistics. The period is from 1970 – 1994.

*Significant at 5 per cent level;

** significant at 10 per cent level

Table 3
OLS Estimation Results for Oil Foreign Direct
Investment in Nigeria 1970 – 1994

Parameters	Eqn. 1	Eqn. 2
Constant	14.447 (2.00)	-10.179 .776
Inf	-.611 (-1.022)	-.054 (-.088)
Rw	-.350 (-1.41)	.196 (.082)
Wo/m	15.25 (2.00)	-
Debt	-1.058 (-2.465)	-
Ycap	-2.270 (-4.00)	-.004 (-.005)
Pol	-1.84 (-.941)	-1.430 (-.783)
rd	-	2.87 (1.142)
R ²	.90	.85
D.W	1.50	1.00
F-test	24.58	18.60

The dependent variable is the log of oil foreign direct investment to GDP ratio. The figures in parenthesis are t-statistics. The period is from 1970 – 1994.

*Significant at 5 per cent level;

** significant at 10 per cent level.

Table 4
OLS Estimation for Non-Oil Foreign Direct Investment in Nigeria
1970 – 1994

Parameters	Eqn. 1	Eqn. 2	Eqn. 3
Constant	10.918* (3.267)	-7.257* (-2.528)	6.238* (2.857)
Inf	-.008 (-.992)	.006 (.402)	-
Rw	-1.396* (-2.375)	-1.119 (-1.10)	-1.372* (-2.225)
rd	-1.017** (-1.617)	1.838* (2.449)	-
Debt	-.214 (1.737)	.044 (.216)	-.257 (-2.039)*
Ycap	-1.479 (-6.26)	-	-1.145 (-7.382)
Pol	-.816** (-1.794)	.003 (.004)	-.743** (-1.554)
rerd	-	-	.007 (.828)
\bar{R}^2	.98	.97	.98
D.W	1.9	1.86	1.87
F-test	305.6	116.3	319.2

The dependent variable is the log of non-oil foreign direct investment to GDP ratio. The figures in parenthesis are t-statistic. The period is from 1970 – 1994.

*5 per cent level of significant;

**10 per cent level of significance.

Table 5
Country Credit Rating: Nigeria, World and Africa
(per cent)

Year	Nigeria (1)	Global Average (2)	Africa (3)	(1-2) (4)	(1-3) (5)
1979	54.3	53.5	31.8	+0.8	+22.5
1980	53.9	52.5	30.5	+1.6	+23.4
1981	55.4	48.0	27.4	+7.4	+28.0
1982	48.1	43.9	25.2	+4.2	+22.9
1983	36.3	41.0	23.2	-4.7	+13.3
1984	29.9	39.9	21.8	-10.0	+8.1
1985	25.4	40.3	22.0	-14.9	+3.4
1986	22.8	40.5	21.6	-17.7	+1.2
1987	20.4	38.9	19.3	-18.3	+1.1
1988	19.2	38.7	19.2	-19.5	0
1989	17.8	39.0	18.9	-21.2	-1.1
1990	18.2	39.0	19.5	-20.8	-1.3
1991	19.5	37.9	19.0	-18.4	+0.5
1992	19.6	45.9	19.0	-16.3	+0.6
1993	19.1	36.1	20.3	-17.0	-1.2
1994	18.4	37.5	21.2	-19.1	-2.8
1995	15.8	38.5	21.7	-22.7	-5.8

Source: *International Investor* (International Edition, Various Issues, New York.)

NOTES: (1) + = Nigeria's Rating is higher than global and Africa; Otherwise:
 (2) Ratings are for September in each year, the March ratings do not differ much.

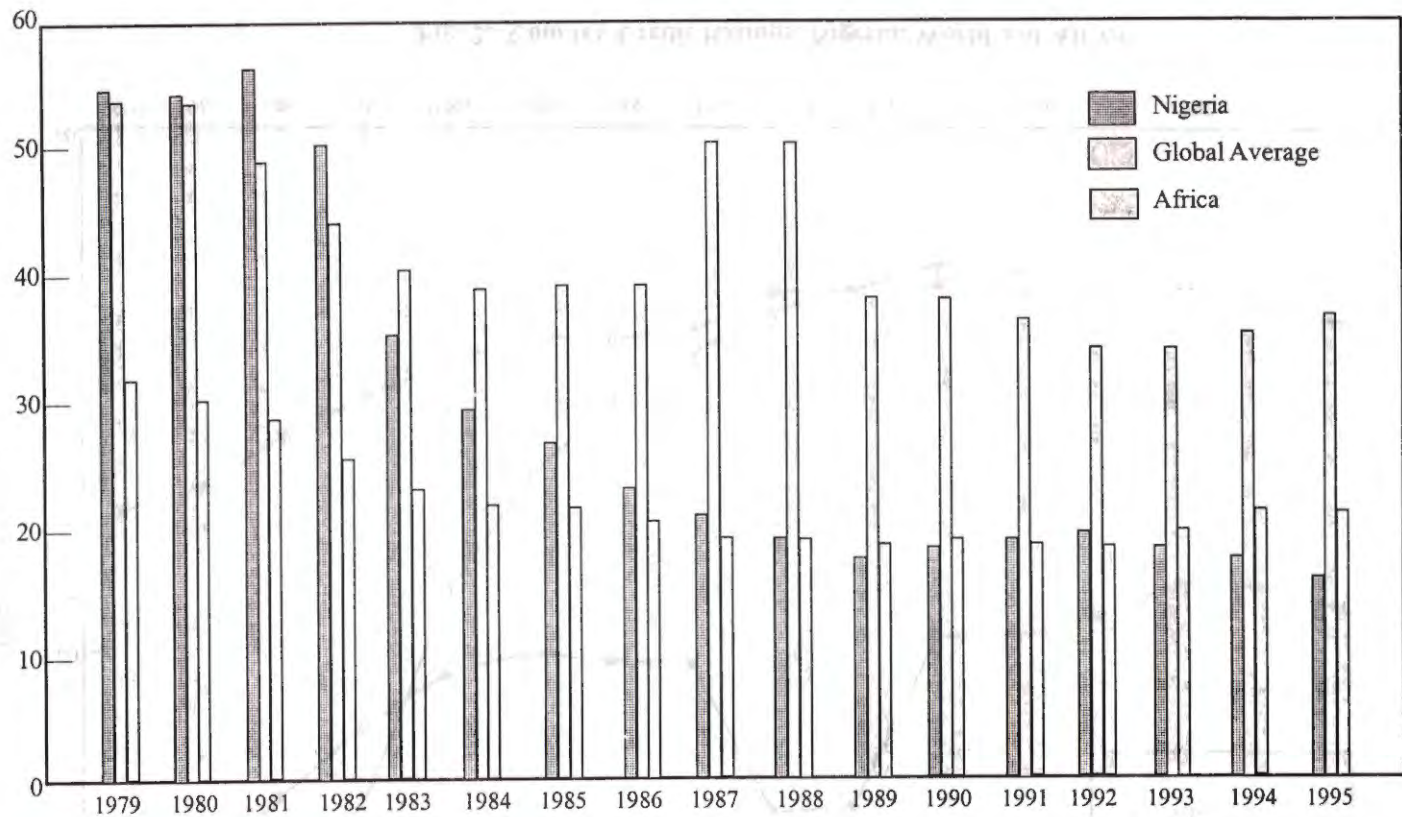


Fig. 1: Country Credit Ratings: Nigeria, World and Africa

Source: International Investors, International edition, various issues, New York

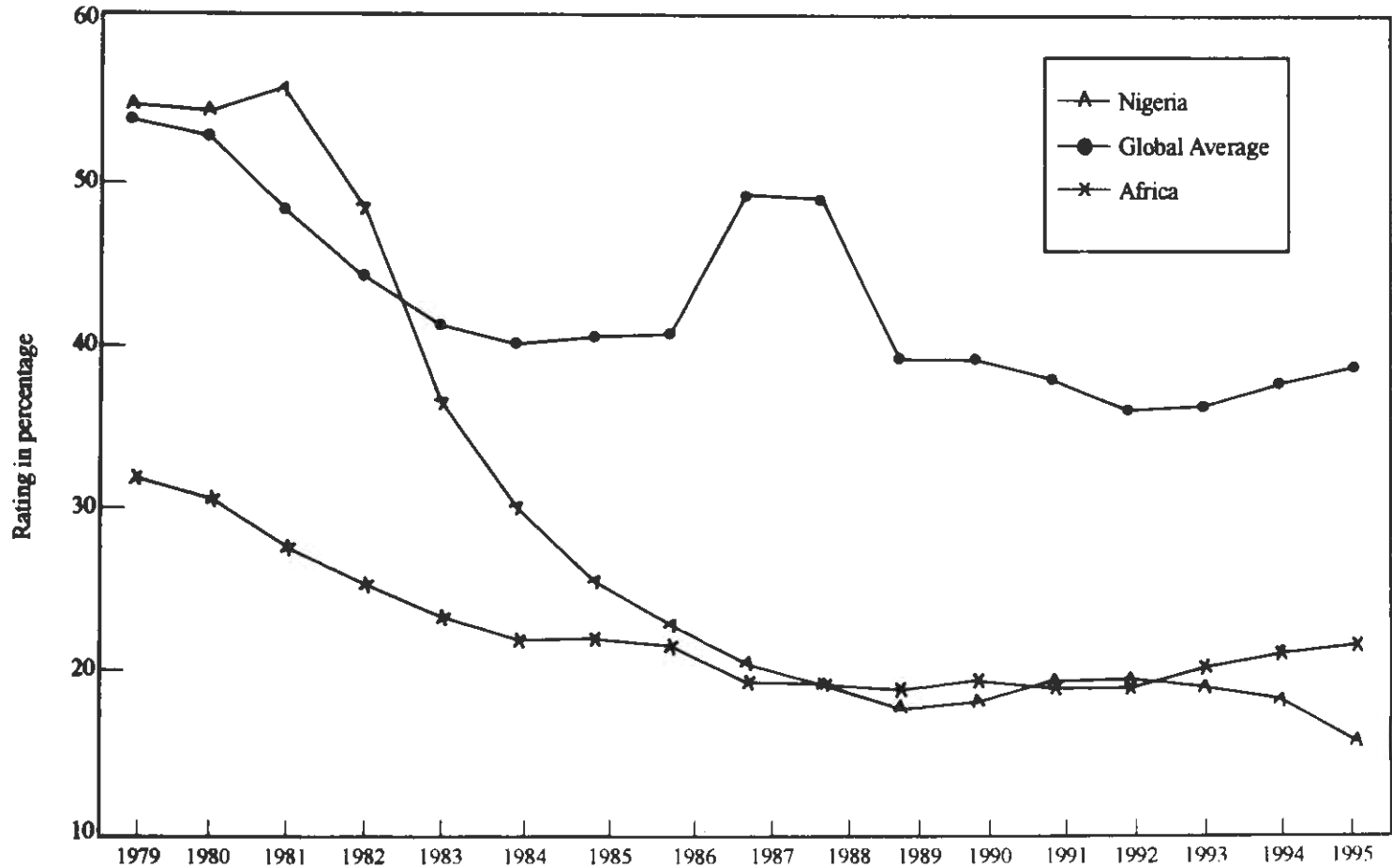


Fig. 2: Country Credit Ratings: Nigeria, World and Africa

Source: *International Investors*, International Edition, New York, various issues

Appendix 1

Summary of Foreign Investment Policies in Nigeria

Period	Policy/Legislation	Incentives/Strategies	Remarks
Colonial Period 1930-1959	Laissez-faire regarding multinationals. Absence of government regulations. Industrial Development ((Income Tax Relief) Act, 1958; Industrial Dev. (Import Duties Relief) Act, 1957; Custom Duties (Dumped and Subsidized Goods) Act, 1958; Customs (Drawback) Regulations 1959; Income Tax Amendment Act, 1959.	Freedom to repatriate at will profits, dividends, and capital; availability of Government assistance in obtaining land and factory site; tariff protection for industries; protracted tax holidays; accelerated depreciation of capital.	Favourable
Post-Colonial 1960-1985	Some government regulation and control; some policies discouraged FPI. Companies Tax Act, 1961; Exchange Control Act, 1962; Immigration Act, 1963; Indigenisation Decree 1972; Decree No. 3 of 1977	Generous capital allowance. (depreciation claim with no limit; tax rebates in respect of losses (before April 1976); later claims were limited to 4 years but indefinite carry forward of losses for agric business. Permission was required for transfer of profits, repatriation of capital and new foreign borrowing; compensation deals to retain some proportion of foreign exchange not needed for local expenditure abroad. Indigenisation Act reserved some businesses for foreigners and some for Nigerians.	Encouraged FPI

Appendix 1 (cont'd)
Summary of Foreign Investment Policies in Nigeria

Period	Policy/Legislation	Incentives/Strategies	Remarks
SAP 1986 - 1993	Deregulated and liberalised policy, New Industrial Policy 1981; Companies and Allied Matters Decree, 1990.	Financial liberalisation; removal of price controls de-caping of interest rate; abolished the indigenisation Act. Foreigners were free to invest in all aspects of the economy; availability of an industrial devevelopment blueprint; establishment of the Industrial Dev Co-ordinating Committee (IDCC).	Favourable
Post SAP 1993 -1996	Guided de-regulation. Some policy reversals on SAP; Nigerian Investment Promotion Commission Decree, 1995; Foreign Exchange (Monitoring and Misc. Provisions) Decree, 1995.	Unconditional transferability of funds; no enterprise shall be nationalised or expropriated by any government. Foreigners cannot be compelled to surrender their interests in any company; establishment of the autonomous foreign exchange market.	Less Favourable

Notes: SAP = Structural Adjustment Programme.

For the post-colonial period, 1960-1985, government was favourable to FPI up to 1972 and less favourable from 1973.

NOTES

1. In order to minimise the problems of spurious regression and ensure "stationarity" some of the variables were expressed as either ratios of GDP or/ and as rates of change. In principle, however, formal test is needed to ensure stationarity.

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