NIGERIA

1970–1990

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Nigeria: Policy Responses to Shocks, 1970–1990

David Bevan

Paul Collier

Jan Willem Gunning

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PREFACE

ICEG is pleased to publish *Nigeria: Policy Responses to Shocks, 1970–1990,* as the eleventh in our series of Country Studies discussing the broad effects of both macro- and microeconomic policies in developed and developing countries. This study is part of a special series of companion pieces being edited by Arnold C. Harberger and building on his influential volume *World Economic Growth* (ICS Press 1984).

The temporary oil bonanza in Nigeria in the 1970s created a dramatic investment boom that had little effect on output. The boom was quickly followed by a slump, the result of an economy plagued by accumulated debt, corruption in the form of patronage, and government pricing interventions. The successful reforms beginning in 1986 came with the Babangida government's recognition of the need to adopt a market-determined exchange rate system and eliminate import licensing—the centerpiece of the government's Structural Adjustment Programme (SAP) beginning in July of 1986. Despite a further decline in oil receipts from 1987 to 1988, the economy enjoyed its most rapid, sustained growth in the post-SAP period up to 1990, at a rate more commonly associated with East Asia than with Africa.

Whether the private sector in Nigeria can continue to enjoy steady growth in an economy still suffering from inefficiency remains to be seen. Clearly, though, Nigeria would never have achieved what it has without the profound reforms of SAP. These prominent scholars of African economies combine their expertise in this timely analysis of Nigeria's experiences during this time of unprecedented political and economic transformation.

Nicolás Ardito-Barletta
General Director
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Panama City, Panama
November 1992

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He has been both a staff member and a consultant at the World Bank and a consultant for the European Community, the International Labour Office, the Organization for Economic Cooperation and Development (OECD), and the United Nations. He is a member of the National Advisory Council on Development Cooperation in the Netherlands. Dr. Gunning has collaborated on numerous publications with David Bevan and Paul Collier, including *Peasants and Governments: An Economic Analysis*, and the forthcoming *Poverty, Equity, and Growth in Nigeria and Indonesia*. Dr. Gunning gained his Ph.D. from Oxford.

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ARNOLD C. HARBERGER

Introduction

Nigeria is a somewhat unusual case among the major oil-exporting nations. Some oil exporters (such as Mexico and Venezuela) allowed the oil boom to create a virulent case of Dutch Disease, even exacerbating it by massive foreign borrowing. Other oil exporters, such as Saudi Arabia and Indonesia (from 1979 to 1981), strongly resisted the temptation to spend the proceeds of the oil boom and simply accumulated the proceeds in the form of foreign reserves. Nigeria, in contrast, followed a path all its own, in the course of which it experienced a serious case of Dutch Disease, sometimes made worse by foreign borrowing, sometimes offset by accumulation of international reserves. In the process, it managed to postpone the effects of the oil-price rise of 1974 and to postpone a needed major devaluation until late 1986.

In this essay, the authors chronicle how Nigeria confronted its oil bonanza. Much of the uniqueness of Nigeria's story is explained by the succession of governments. Nigeria had a military government at the time of the oil-price boom in 1974. The technocratic bent of this government had both favorable and unfavorable consequences. On the favorable side, it allowed the bulk of the oil-price rise to be reflected in increased international reserves—a prudent decision that most of the other relatively populous oil-exporting countries did not have the strength

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and courage to implement. The ideal response to an export price-boom is to park the proceeds in income-earning assets abroad and to repatriate them only as the economy develops domestic investment projects with a social rate of return at least as high as that of the nation's overseas portfolio. The Nigerian technocrats (the authors call them mandarins) got the first part right but failed miserably on the second. They failed because they fell prey to a vision that was already discredited at the time—import-substituting industrialization. Vast sums were allocated to public sector megaprojects (including two steel mills, built at a cost of some US$11 billion) that were never able to compete in world markets. The authors consider that the great bulk of the extra revenues due to the oil booms went into such projects and that they ended up bringing no measurable benefit to the Nigerian people.

When the military government was replaced by civilian rule just before the second oil boom, the investment projects were continued, but government consumption also increased. An initial accumulation of reserves in 1979 and 1980 quickly evaporated as a result of increased spending, while public and publicly guaranteed foreign indebtedness (outstanding and disbursed) more than tripled (to over US$12 billion in 1983). The civilian regime was thus able to spend its way to victory in the 1983 elections; it was, however, overthrown in a military coup soon after. In spite of major efforts at adjustment, reflected in falling real income and drastically reduced imports, Nigeria's international debt continued to increase exceeding US$28 billion by 1987.

One way to appreciate the nature and extent of Nigeria's spending during the boom, and of the sharpness of the adjustment that later took place, is to examine the trajectory of imports. These are expressed in dollars of 1985 purchasing power over tradable goods. From a level of barely over US$3 billion in the years 1970 to 1973, imports hardly moved in 1974, but had more than doubled by 1975. By 1976 they had more than tripled, and from 1977 through 1982 they were over four times the 1970–1973 level. The downward adjustment was significant from 1983 to 1985, but even in 1985 real dollar imports were still more than twice what they had been from 1970 to 1973. The terrible crunch came from 1986 through 1990, when imports were back to the 1970–1973 level—this in spite of the population's having almost doubled in the interim. This awesome cutback of imports produced a trade

balance that was continuously positive from 1984 onward, though not enough to fully service the nation's outstanding debt.

Nigeria's real exchange rate history quite faithfully reflects the events described above. Defining the real exchange rate as the number of Nigerian consumer price index baskets needed to buy a generalized basket of world tradables, we find the real exchange rate index to have fallen from an index of around 250 in the early 1970s to an index of around 100 in 1984 and 1985. This fall in the real price of the dollar was the product of the abundance of dollars generated by the two oil booms, together with the substantial international borrowing that helped first to postpone and then to attenuate the adjustment process. By the time the full force of Nigeria's wrenching adjustment had been felt, the real price of the (real) dollar had moved into the 450–500 range—nearly five times its lowest level and approximately twice its level in 1971 and 1972 just before the onset of the first oil-price boom.

Overall, Nigeria's real exchange rate story is like that of many countries that fell prey to the international debt crisis of the early 1980s. Nigeria stands out in this group because its experience stretches over nearly two decades (compared with less than one decade for most of the others) and because of the enormous range over which the real exchange rate varied—first falling to half its initial level, then quintupling as the adjustment crunch bit in.

The following table is presented to help readers see the picture sketched in this introduction. This table may also be used as a background for the paper as such, because its own tables are mainly oriented to subperiods and are often expressed as comparisons with alternative counterfactual scenarios.

NIGERIA, 1970–1990

	GDP[a] (billion naira at 1985 prices)	Real[b] imports	Real exchange[c] rate index (1985 = 100)	Dollar[d] price level of tradables (1985 = 100)	Long term debt[e] (billion U.S. dollars)
	(1)	(2)	(3)	(4)	(5)
1970	—	2,511	284.6	37.4	0.5
1971	—	3,545	257.0	39.3	0.5
1972	—	3,162	252.3	43.2	0.6
1973	61.8	3,303	287.5	51.9	1.1
1974	69.3	4,013	290.7	61.8	1.2
1975	67.2	8,185	230.6	67.0	1.1
1976	74.5	10,997	191.6	68.0	0.8
1977	80.6	13,121	188.8	74.1	0.9
1978	74.4	13,715	175.6	85.2	2.3
1979	76.6	13,143	169.8	96.7	3.2
1980	80.6	13,354	158.4	109.6	4.2
1981	73.9	17,637	144.5	107.0	6.3
1982	73.7	14,273	141.8	103.7	9.1
1983	69.7	11,148	122.0	102.2	12.2
1984	66.0	8,493	90.8	100.4	11.4
1985	72.4	7,769	100.0	100.0	13.1
1986	74.6	3,208	215.2	115.4	19.3
1987	74.3	3,179	496.6	128.3	28.7
1988	81.6	3,115	433.5	137.1	29.3
1989	89.7	2,721	461.3	135.7	31.7
1990	94.9	3,337	511.9	147.8	33.7

SOURCES:

a. International Monetary Fund, *International Financial Statistics Yearbook*, 1992, line 99b.

b. *Ibid.*, line 77abd, deflated by figures in column 4.

c. *Ibid.*, line rt, deflated by line 64 (Nigerian consumer price index) and multiplied by figures in column 4.

d. This index takes the wholesale price indices (WPIs) of the major industrial countries as independent measures of the world price of tradables, each expressed in the country's own currency. The WPIs of France, Germany, Japan, and the United Kingdom are shifted to a dollar basis by multiplying by indices of the dollar to deutsche mark, dollar to yen, dollar to franc, and dollar to pound exchange rates. This gives us indices (1985 = 100) of the dollar prices of tradables in the respective countries. Column 4 is computed using these indices combined with the U.S. WPI, with the following weights: U.S., .42; Germany, .19; Japan, .15; France, .12; and the United Kingdom, .12. These weights were used by the IMF in its construction of the special drawing rights for 1985 through 1989. The weights used for 1980 through 1985 and after 1990 are similar.

e. The World Bank, *World Debt Tables*, 1988–89 and 1991–92 editions. Series given is for public and publicly guaranteed debt outstanding (LDOD).

DAVID BEVAN, PAUL COLLIER, AND JAN WILLEM GUNNING

Nigeria: Policy Responses to Shocks, 1970–1990

Nigeria's recent economic history has been dramatic. In the 1970s, the country received an enormous but temporary oil bonanza. This financed an investment boom that, remarkably, had little effect on output. The boom was succeeded by a severe slump, caused partly by a fall in oil prices and partly by debt accumulated during the boom. During the slump, adjustment was postponed until 1986, when the government introduced dramatic economic reforms. Recent evidence suggests that these reforms are beginning to pay off.

Because the period since 1970 has been characterized by large trade shocks, both positive and negative, three features will dominate our analysis. First, because both the oil boom and the borrowing generated resources for the public sector, the government faced a choice between directly absorbing them and transferring them to the private sector. Second, external shocks imply that relative prices must change to maintain market clearing. Agents, public or private, could either accept or resist these price changes. Third, an appropriate response to the shocks would have involved substantial changes in national assets.

After a short historical introduction, we consider the period of the oil shocks (1973–1981), estimating the magnitude of the windfall and its consequences. The period left Nigeria with a large external debt

and little to show for a massive investment program. We then focus on the period of the slump up to the period of adjustment beginning with the 1986 crash in oil prices. Although both public and private expenditure were massively reduced, the government resisted changes in relative prices. A discussion of the policy reforms adopted shortly after the crash follows. These reforms included the abandonment of the fixed exchange rate and a substantial liberalization of trade.

The Oil Shocks: 1973 to 1981

Prelude to the oil shocks. The authority of traditional rulers was largely left intact during the colonial period under the system of indirect rule established by the British. Nigeria became a colony not of settlers but of traders. Expatriate mining and plantation operations, unlike those in East Africa, were not allowed to become dominant. The colonial government instituted an open-door policy: there were no restrictions on imports or on direct investment (other than land purchases).

The colonial period saw rapid growth in agricultural exports (cocoa, rubber, palm oil, cotton, and groundnuts); exports are estimated to have grown at the rate of 5.5 percent per annum between 1900 and 1929. Smallholder production of export crops was actively encouraged by the government, in particular through investment in roads, railways, and other forms of infrastructure. The economy experienced violent trade shocks between 1911 and 1945 (Helleiner 1966, pp. 494–95), but adjusted semiautomatically, largely because an independent monetary policy was impossible under the system of the West African Currency Board. In addition, the open-door policy ruled out adjustment to external shocks through changes in trade policy.

The noninterventionist, proagriculture policy stance changed radically toward the end of the colonial period. Marketing boards were set up to stabilize producer prices. These boards accumulated enormous reserves during the commodity boom associated with the Korean war. Subsequently, the surpluses were used not to support producer prices but to finance development plans; the boards became fiscal agents, useful sources of finance for nonagricultural investment. Agriculture was taxed increasingly heavily, and, at the time of independence, the potential for further growth of agricultural exports was in serious doubt.

Nigeria is ethnically diverse and colonial policies reinforced tribal tensions. Tribalism was reflected in the 1951 constitution, which established a quasi-federal system with three regions (Northern, Eastern, and Western), roughly corresponding to three large ethnic groups—the Hausa-Fulani, Ibo, and Yoruba peoples respectively. About half the population lived in the North, economically the weakest region. The West contained the main urban centers (Lagos and Ibadan) and controlled the main export crop, cocoa. Oil was discovered in the East in the 1950s.

When Nigeria became independent in 1960, oil exports (which had started in 1958) were still insignificant: Nigeria was still basically an agricultural export economy with cocoa, groundnuts, and palm oil as the most important crops. Government policy emphasized industrial growth, partly through the encouragement of direct foreign investment and partly through public investment. Government revenue had fallen after the commodity boom of the Korean war period, and the revenue problem came to be seen as the main constraint on development, in particular on industrial growth. It was this constraint that was to be removed by the oil boom. This immediately became a bone of contention, however. Under the principle of derivation, regions were entitled to the revenue generated in their own territory, which excluded the North and West from the benefits of the oil boom.

During the first six years of independence (1960–1966), regional tensions pushed the country into chaos. Political stability was undermined when the federal government (dominated by the North) intervened in elections in the West. The North and West formed an alliance to benefit from the oil rich East. This led to two military coups in 1966, the East's secession from the federation, and the 1967–1970 civil war, which claimed two million lives.

Measuring the effects of the boom. The oil boom came at a time when Nigeria was concerned with the task of postwar reconstruction, a task mainly defined by the need to repair and create infrastructure. Export of agricultural commodities had dwindled into insignificance: as a share of GDP agricultural exports fell from 10.5 percent in 1966 to only 3.5 percent in 1973. By 1966 oil was already Nigeria's main source of foreign exchange, accounting for a third of total exports. The boom had three components: the increase in oil output in the early 1970s

and the oil-price shocks of 1973–1974 and 1979–1980. Rather than try to disentangle the effects of these shocks, we take them together.

At the start of the oil shocks, Nigeria had a military government that did not intervene very much in economic policy making, giving considerable power to the civil service. In effect, the military protected senior civil servants from popular political pressures. Civil service mandarins aimed to achieve economic growth through public investment programs, a strategy reflecting the conventional wisdom of the time. Nigeria returned to civilian rule under President Shagari shortly before the second oil-price increase. Maximization of support through patronage became the objective of the government. There was a corresponding loss of power by the civil service mandarins. Patronage was made easier by increasing the number of states and by not enforcing legal rules against corruption. While during the period of military government, the mandarins had pushed investment projects, the civilian government viewed the growth of public expenditure as an opportunity for patronage. Kickbacks increased the costs of investment projects spectacularly. For example, the contract for the construction of a dam, which had been concluded by the military government for U.S. $120 million, was renegotiated by the civilian government to U.S. $600 million, presumably a result of a considerable increase in rent-seeking activities characterizing the switch to civilian rule.

The oil boom left the government with several choices. First, the decision whether to retain the oil income for its own expenditure or to pass it on to the private sector. Having decided to retain a portion of the revenue, it had the choice between continued recurrent expenditure and saving. Finally, to the extent that the government saved, it had a choice among assets. To measure these choices and their consequences we construct a counterfactual scenario. We take 1970 as our base year, defining 1971–1981 as the boom period, and we assume OPEC away: the pre-1970 oil output growth would have continued, but relative prices would have remained unchanged. We assume that GDP (both oil and non-oil) would have grown at its prewar rate of 6 percent per year, that consumption (public and private) would have been the same percentage of GDP as its prewar average (85 percent), and that the resource deficit (the excess of imports over exports) would have remained constant at 11.5 percent of GDP. Given these assumptions

investment then follows from the GDP identity. Table 1 shows the actual GDP and its components for Nigeria during the boom period leading up to the crash.

In Table 2 we show the difference between the actual outcome and the counterfactual case. The first three columns show the differences for oil GDP, non-oil GDP, and total GDP. The first thing to note is that oil GDP is considerably higher than in the counterfactual. Hence, output responded to the price increase in spite of the OPEC-imposed restraint on oil production. Non-oil GDP is initially higher than in the counterfactual (from 1974 to 1977), but by 1981 it is actually lower. Even total GDP is more than 10 percent lower. This is a remarkable result: in spite of the massive investment program financed by the windfall, output was considerably lower than it could plausibly have been in the absence of the shocks.

The next three columns show gross domestic expenditure (GDE) and its composition in terms of consumption and investment. During the period of the military government there is a large increase in investment, a trend that is abruptly reversed by the civilian government. Indeed, during the early phase of the boom, the government's savings effort was so substantial that, in addition to domestic investment, foreign

TABLE 1 Actual GDP and its Components, 1970–1981 (million naira at 1970 prices)

	GDP		Consumption				Resource
	Factor cost	Market prices	Private	Public	Investment	Exports	inflow
1970	15,880	16,337	12,387	1,335	2,638	1,855	1,878
1971	17,403	17,918	12,844	1,445	3,450	2,663	2,484
1972	18,035	18,232	12,401	1,535	3,605	2,913	2,222
1973	19,519	19,957	13,207	1,877	4,298	3,295	2,720
1974	22,699	23,110	16,573	2,334	4,409	3,180	3,386
1975	22,912	23,270	16,361	3,194	6,628	2,634	5,547
1976	25,264	25,651	17,980	3,133	8,871	2,938	7,271
1977	26,786	27,154	18,853	3,826	9,922	3,255	8,703
1978	25,702	26,087	20,843	3,157	7,295	2,802	8,010
1979	25,830	27,228	21,620	3,157	6,074	3,217	6,840
1980	27,086	27,493	21,143	3,600	7,025	3,145	7,420
1981	27,257	27,667	21,832	4,200	7,649	1,986	8,000

SOURCE: Bevan et al. 1992a.

TABLE 2 Effects of the Shock
(million naira at 1970 prices)

	GDP			GDE			Increase in resource inflow		
	Oil	Non-oil	Total	Consumption	Investment	Total	Windfall	Extra capital inflow	Total
1970	0	0	0	0	0	0	0	0	0
1971	553	48	602	-430	828	397	-70	-134	-204
1972	863	-987	-124	-1,666	825	-841	-153	-564	-717
1973	535	-35	500	-1,455	1,352	-103	434	-1,037	-603
1974	1,002	1,483	2,485	1,376	1,286	2,662	4,602	-4,426	177
1975	238	1,169	1,407	972	3,317	4,290	3,257	-375	2,882
1976	649	1,828	2,478	1,415	5,362	6,777	4,408	-108	4,299
1977	592	1,997	2,589	1,799	6,202	8,002	5,310	103	5,413
1978	195	-147	49	1,868	3,352	5,220	3,465	1,706	5,171
1979	433	-806	-373	1,317	1,894	3,211	4,825	-1,242	3,584
1980	38	-1,801	-1,763	-125	2,595	2,470	5,794	-1,560	4,233
1981	-976	-2,368	-3,344	-328	2,953	2,625	4,443	1526	5,969
Total	3,068	1,063	4,131	1,671	16,000	17,671	17,968	-4,428	13,540

NOTE: GDE is gross domestic expenditure.
SOURCE: Bevan et al. 1992a.

assets were also accumulated. As a result, consumption was lower than in the counterfactual.

The second to last column shows the increase in the resource inflow—that is, the increase in the excess of imports over exports measured at constant prices. The resource inflow changes for two reasons: changes in the terms of trade and changes in borrowing. In the first four years of the boom most of the extra oil income was used to acquire foreign assets so that the extra resource inflow was unimportant. By the late 1970s, however, this extra capital was augmenting expenditure by around 15 percent.

It is useful to have a summary measure which describes responses over the whole period of the boom. This is particularly important since several of them, such as GDP and borrowing, change sign. We therefore consider the bottom line of the table, which shows the discounted totals.[1] For example, although GDP was sometimes higher and sometimes lower, the net effect on this measure was a small increase of Naira 4 billion, of which N 3 billion was attributable to the rise in oil output. Non-oil GDP was virtually unaltered by the boom. GDE, by contrast, rose by almost N 18 billion, more than total expenditure in 1970 (N 16 billion). Reflecting the priorities of the mandarins, this was used primarily to increase investment: less than 10 percent of the increase was consumed, more than 90 percent invested.

The increase in expenditure of N 18 billion was composed of three unequal parts. As we have seen, only N 1 billion of it was accounted for by extra non-oil production, N 21 billion was due to extra oil income (increases in both price and quantity), about N 4 billion of which was, however, used to acquire foreign assets rather than to augment expenditure. When these foreign assets are added to the large increase in domestic investment we find that the total savings rate out of the windfall was an astonishing 97 percent, the asset accumulation being split between N 16 billion of domestic investment and N 4 billion of foreign assets.

Recall, however, that this remarkable investment effort had virtually no effect on non-oil output, which was only N 1 billion higher over the period of the oil boom. Even more remarkable is the situation at the end of the boom. By 1981 both consumption and GDP were lower than they would have been had the oil boom not occurred.

Public policy. The oil boom income accrued almost entirely to the federal government, which reacted with a massive increase in expenditure, most of it in investment. Current expenditure rose so little that it fell as a percentage of GDP. Public investment, however, doubled in 1974. The emphasis on investment was so strong that its share in public expenditure rose from about 25 percent to 60 percent. Although expenditure rose substantially, it did not outpace revenue. Between the periods from 1967 to 1973 and from 1974 to 1979, oil revenue rose from 5 percent of GDP to 19 percent while expenditure rose from 17 percent to 25 percent.

The investment boom is remarkable in two ways. First, the investment rate was very high, given that the government for a long time treated the oil boom as permanent. In 1974 government documents suggested that as a result of the oil money "foreign exchange is unlikely to feature as a major problem" for the rest of the decade (Nigeria 1974, p. 8, quoted by Oyejide 1991). Not until after the fall of oil revenue between 1977 and 1978 was the transitory nature of the shock recognized. Hence the high investment rate cannot be seen as an appropriate response to a positive shock correctly seen as temporary. Rather it reflects the capital accumulation dogma of the civil servants, particularly during the period of military government. During the civilian period it reflects the heightened awareness of the suitability of investment projects for kick-backs.

The investment boom is remarkable in a second way: the absence of a return. Before the oil shocks, Nigerian industrial policy had been dominated by two concerns: the encouragement of foreign investment (largely through tariff policies) and indigenization of industry—a policy possibly fed by resentment of the Lebanese and Syrians who were extremely successful as small-scale industrial entrepreneurs. In addition, Nigerian civil servants saw industrial investment as the essence of development and had a particular fascination with large-scale industry. In the 1970s they saw the government's role as one of control over and encouragement of strategic industries, including petrochemicals, fertilizers, and most notably, iron and steel. The oil boom furnished the money to realize these ambitions. In addition, the civil servants enjoyed a period with few constraints on their power. Neither peasants nor urban wage earners constituted effective interest groups, and the

military, by removing the politicians, strengthened the position of the civil servants.

Hence, far from leading to deindustrialization as predicted by the theory of Dutch Disease, the oil boom led to rapid growth of the industrial sector. There was massive public investment in manufacturing and considerable subsidized private investment. By 1980 industrial investment alone accounted for an astonishing 20 percent of federally retained revenue. Two enormous steel mills were built at a cost of some U.S. $11 billion. It has been estimated that these cannot produce at a cost less than three times the world price (Auty 1989). The Nigerian case is not unique. Gelb (1988) presents evidence on the investment programs of oil producers showing a bias in favor of "strategic industries" (in particular, iron and steel and chemical industries) and a preference for "mega projects."

While industry was not adversely affected by the boom, agriculture was, and this was possibly the boom's most important consequence. This represented a classic Dutch Disease effect. The effect of the boom on spending drew mobile resources, particularly labor, into the government sector (where employment expanded rapidly) and into construction. Much of this labor was drawn out of agriculture, causing a decline in the production of both export crops and food crops. The effect of this labor shift on agricultural output was reinforced by a fall in the use of fertilizer and a sharp reduction in replanting of tree crops. The Dutch Disease effects might have been offset by government policy but were not. There was no lobby for policies in support of agriculture. "Neither the military nor any of the political parties articulated peasant interests, not indeed that peasants represented a homogeneous interest group," (Bevan et al. 1988, p. 67.) Agricultural spending virtually ceased, falling to 2 percent of the budget.

The agricultural decline was dramatic. In the period from 1972 to 1985, production of rubber and cocoa, which had been growing at over 10 percent and 6 percent per annum respectively in the period from 1950 to 1966, declined by around 6 percent per annum. Growth in production of palm oil continued but only at around 5 percent per year, considerably less than in competing countries. (Indonesian palm oil production, for example, grew at 11 percent per annum.) By 1981 agriculture's share of GDP (almost two-thirds in the period from 1960

to 1965) had fallen to 28 percent. Export crops declined in aggregate relative to services from 100 percent in 1966 to 11 percent in 1981.

Throughout the period of the boom the government maintained a fixed exchange rate, keeping it in the range between U.S. $1.52 and $1.66 per Naira. In this it was extreme even within the group of oil producing countries, many of whom postponed exchange rate adjustment (Gelb 1988). Had it appreciated the rate it would have had lower inflation. Had it depreciated the rate it would have moderated the price squeeze on exports of agricultural commodities that (unintentionally) hastened the agricultural decline. Depreciation was the route taken by the Indonesian government in 1978 in order to offset the Dutch Disease effect on agriculture.

As a result of the fixed exchange rate policy, the two oil price increases (1973–1974 and 1979–1980) were initially reflected in a buildup of reserves that were subsequently drawn down. The exchange rate policy became unsustainable in the 1980s, but the Naira was not devalued until 1984. As a result of this policy, balance of payments equilibrium was maintained through changes in trade restrictions. Hence, fluctuating oil revenue was reflected in an unstable trade policy. Restrictions were relaxed in 1973, tightened in the years 1976 to 1978, and relaxed again in the years 1979 to 1981.

Although the increased revenues of the oil boom accrued to the public sector, the private sector could potentially have benefited from it in three ways. First, the government could have transferred the windfall directly to the private sector, for example in the form of subsidies (in some oil producing countries, for example Indonesia, an important channel of public-private transfers) or lower taxes. Second, the government could have invested in goods and services considered useful by the private sector. Finally, the private sector could have benefited even from public expenditure on useless goods and services, namely if these required nontradables. In that case the private sector would benefit through induced increases in factor prices. In Nigeria none of these channels were very important. With one exception, there was no significant attempt at direct transfers, and government expenditure was largely on undesired tradables (such as steel mills) and undesired nontradables (overstaffing in the public sector). Hence, the population benefited only to the extent that government spending of the windfall raised

wages. Indeed, most commentators estimate that at the end of the day private consumption, in spite of the massive investment program, was no higher than before (Gelb 1988, Bevan et al. 1988). Hence, far from succeeding in converting the windfall into a permanent improvement in living standards, government policy probably lowered them relative to the counterfactual.

The exception to the absence of direct transfers was education. Primary education was expanded and made free. Education increased its share of recurrent expenditure from 2 percent to 17 percent. Between 1970 and 1978 primary school enrollment rose from 37 percent to 79 percent, and secondary school enrollment from 4 percent to 10 percent. The expansion of education represents the boom's most important positive legacy in the long run. In the short run the main outcome of the boom period was a negative one: during the civilian period the public sector lost control over public spending, reflected in the accumulation of debts. During 1981, the government achieved the peak level of the resource inflow, but only by borrowing in an unsustainable fashion. As we will show, this played a major part in the subsequent crash.

The Slump: 1981 to 1986

The slump of the period from 1981 to 1986 is remarkable both for its overall scale and for the distinctive policy choices made by the three governments which presided over it, namely the Shagari regime, followed by two military governments, Buhari and Babangida. We first measure the scale of the crash, distinguishing between its two components, oil income and borrowing. We then turn to two decisions which the shocks forced on the Nigerian government and the private sector: Should assets be depleted? Should price changes be accepted or resisted?

The scale of the shocks. Oil revenue started to collapse during 1981 as a result of two policy errors. The Ministry of Petroleum adopted an overly optimistic pricing strategy (Nigerian oil being U.S. $4 per barrel more expensive than North Sea crude), and there was a backlash from the government's failure to honor its long-term contracts to sell on the spot market during 1980. There was a further collapse in 1986

as a result of the price fall, although this was slightly mitigated by the opportunity to increase production. As in our previous analysis of the boom period, to quantify these shocks we need a counterfactual. The counterfactual adopted for the boom period was that OPEC would not have been formed. That which we adopt for the slump is conversely that the OPEC pricing position of 1981 would have been sustained at the 1981 volume of Nigerian oil exports. The actual loss of export income is shown in Table 3. Over the whole period, export income (by this time essentially the same as oil income) was reduced by more than half, this being caused by the crashes of 1982 and 1986 with only a partial recovery in the intervening years.

The oil shock was compounded by the unsustainability of the previous borrowing. Not only could the flow of borrowing not be sustained, but the accumulated debt had to be serviced. By 1986 this had changed the country into a net exporter. This swing from borrowing to repayment was so large that it was of the same order of magnitude as the oil shock. In Table 4, we quantify this by taking as a counterfactual continued borrowing at the 1981 level (in constant prices).

Cumulatively, the losses from the oil shock and the reduction in net capital inflow during the five years were around 120 percent of GDE in 1981. Although these factors were volatile, in combination they followed a steady path of deterioration (see the last column of Table 4). The terms of trade deterioration caused by the fall in oil prices implied that gross domestic income (GDY) would fall relative to GDP; the reduction in the net capital inflow implied that GDE would fall relative to income. The three series are compared in Table 5.[2] Two features of

TABLE 3 The Loss of Export Income, 1981–1986 (1981 = 100)

	Export volume	Terms of trade	Export income
1981	100.0	100.0	100.0
1982	94.0	77.1	72.5
1983	100.0	68.2	68.2
1984	105.1	78.0	82.0
1985	115.7	78.3	90.6
1986	115.6	37.4	43.2

SOURCE: Bevan et al. 1992a.

TABLE 4 Reduction in Resource Inflow: The Counterfactual Case, 1981–1986
(million naira at 1984 prices)

	Export loss	Reduction in net capital inflow	Total reduction
1981	0	0	0
1982	12,835	870	13,705
1983	14,842	11,393	26,235
1984	8,401	25,894	34,295
1985	4,387	32,004	36,391
1986	26,510	17,166	43,676

SOURCE: Bevan et al. 1992a.

the table are particularly noteworthy. First, the scale of the decline in real expenditure is extraordinary. The fall of over one-third in only five years in fact understates the human impact because population increased by around 15 percent over the period; thus, in per capita terms, expenditure nearly halved (declining by 44 percent). Second, production of the nonexport (that is, non-oil) economy was stagnant or declining.[3] This can be seen either as disappointing, in view of the high rate of investment during the boom and the rapid growth of the labor force, or as demonstrating resilience in the face of such a severe slump in demand.

Asset choices. Policy makers and private agents were thus faced with a precipitate decline in expenditure brought on partly by a loss of oil income and partly by a decline in the level of borrowing. A crucial decision concerned whether these losses would be borne predominantly by assets or by consumption of existing capital stock. To the extent that the crash was temporary, a reasonable strategy would be to decumulate assets. The weakening of OPEC, however, and the manifest unsustainability of borrowing at the 1981 level augured for the bulk of the expenditure losses being long term.

Since the decline in expenditure was very rapid and could to some extent be regarded as temporary, there was some case for cushioning consumption. The savings effort could not be reduced by extra foreign borrowing, however, because the initial borrowing level was itself unsustainable. Hence, the only means of extra dissaving open to the

TABLE 5 GDP, GDY, and GDE, 1981–1986 (1981 = 100)

	non-export GDP	GDY	GDE
1981	100.0	100.0	100.0
1982	100.6	88.6	89.8
1983	93.7	82.8	77.0
1984	87.8	85.3	68.1
1985	96.3	93.8	70.5
1986	96.1	73.4	64.8

NOTE: Figures do not correspond to published series because adjustments have been made in order to value output and expenditure approximately equal to relative prices instead of the highly distorted prices used in all official series.
SOURCE: Bevan et al. 1992a.

economy was to consume the existing capital stock by failing to replace it as it depreciated. The shocks implied a large rise in the relative price of non-oil tradable goods, offsetting this effect somewhat. In turn, this implied that if the capital stock had been correctly allocated between the tradable and nontradable sectors on the basis of boom relative prices, then the allocation would now no longer be optimal. Since capital is fairly sector-specific once it is allocated, the main way of relocating it is through investment. A change in relative prices combined with correctly allocated capital stock therefore raises the real rate of return on investment.

In the event, as shown in Table 6, the chosen strategy was asset depletion: of the fall in expenditure, 53 percent was accounted for by investment and only 47 percent by consumption. Investment was reduced far more dramatically than consumption. By 1986 consumption had declined by 25 percent and investment by 60 percent. While on the credit side of the asset position, namely investment, there was a collapse, on the debit side, namely borrowing, it moved from rapid debt accumulation to debt repayment. The net effect of these changes is the savings series shown in Table 6.

The savings rate was highly erratic. In 1981 it was only 17 percent, very low considering that the economy was in the late stages of an unprecedented income boom. During the period from 1982 to 1983, the savings rate crashed to around 10 percent as a result of the Shagari

TABLE 6 Investment, Consumption, and Savings Rate, 1981–1986 (at 1984 prices, 1981 = 100)

	Investment	Consumption	Savings rate (% of GDY)
1981	100.0	100.0	16.9
1982	76.3	95.9	10.0
1983	52.7	87.9	11.7
1984	44.0	78.9	23.2
1985	38.5	84.9	24.9
1986	40.5	75.8	14.2

SOURCE: Bevan et al. 1992a.

government's failure to use the opportunity of the windfall to accumulate assets. Thus, the government's response to adversity was consistent with the overall tenor of its behavior, namely profligacy. Arguably this was because the Shagari government was peculiarly ill suited to address painful economic choices. Its very design was a system of patronage responding to the central question posed by the oil windfall of the 1970s: namely, how should a geographically concentrated resource windfall be distributed in the wake of a civil war? The political contest had been about which patronage network would control public expenditure. Like any patronage system it needed to be maintained by a continuous flow of resources. This need was accentuated by the general and presidential elections scheduled for late 1983. Hence, both the nature of the policy problem and its timing were radically unsuited to be tackled by the existing political process.

The strategy of dissaving, though economically unsound, was politically successful; the Shagari regime survived the elections despite being faced by an economic decline that would have unseated most governments. Allegations of fraud, however, were sufficiently widespread to call its legitimacy into question, and it was immediately toppled by a military coup. The Buhari regime followed the practice of previous military governments in Nigeria by claiming a temporary role of cleaning up government as proof of legitimacy. Not only did the government have the license to take drastic action, but its precarious claim depended upon a dramatic break with past policies. The centerpiece of policy change—assets—can be discerned from Table 4. The Buhari regime

was fortunate in benefiting from a substantial improvement in export income. Yet domestic expenditure was retrenched. As a result the government succeeded in its first year in doubling the savings rate to nearly 25 percent.

The policy stance of the Buhari regime was politically unsustainable. The combination of fiscal stringency and a failure to liberalize the economy relied on a highly repressive and authoritarian stance by the government, and offered no obvious route to resolution of the economy's structural problems. It was not surprising that this engendered a further coup in August 1985. The new Babangida regime faced an extremely weak political and economic position. Politically, it could not pose as a military clean-up regime since it was displacing just such a government. Economically, it was immediately faced with the crash in oil prices so that in its first full year of office (1986), real income fell by more than 20 percent, an unprecedented decline even by the harsh standards of preceding years. The short-term solution chosen was to revert to asset depletion; between 1985 and 1986 the savings rate fell by more than 10 percent. The rate of dissaving reached 63 percent. The choices of the Babangida regime at this stage thus followed those of the Shagari regime. Its lack of legitimacy appeared to make it as vulnerable, in its way, to popular discontent as a civilian regime facing an election. Yet, as we will see in the next section, the Babangida regime subsequently implemented far-reaching policy reforms.

So far we have considered asset behavior only at the aggregate level. We now distinguish between the behavior of the government and other agents (see Tables 7 and 8). During the Shagari phase of the slump (1981 to 1983), most of the fall in income was borne by the public sector. In response, public consumption was protected by reducing the public savings rate from 32 percent to 6 percent. Despite this public asset depletion, the investment collapse was markedly more pronounced in the private sector.[4] Arguably, the private sector recognized the public policy stance as unsustainable and wished to avoid irreversible capital expenditures.

During the Buhari phase (1984 to 1985) both public and private incomes recovered modestly. The remarkable rise in the aggregate savings rate, noted above, was common to both the public and private

TABLE 7 Public and Private Consumption and Investment, 1981–1986

	Consumption		Investment (GFKF)[a]	
	Private	Public	Private	Public
1981	100.0	100.0	100.0	100.0
1982	95.9	96.1	55.8	95.1
1983	86.7	95.0	37.9	65.6
1984	79.2	77.6	53.9	40.3
1985	86.1	78.9	30.6	44.8
1986	76.2	73.5	39.3	39.3

a. GFKF stands for gross fixed capital formation.
SOURCE: Bevan et al. 1992a.

sectors, the public turnaround from 6 percent to 35 percent being extraordinary. Reversing the priorities of the Shagari regime, while private consumption was maintained, public consumption was savagely reduced.

Table 8 shows that the Babangida government was able to protect its own income, passing the shock on to the private sector. Devaluation was the taxation device used by the government to shift the shock. This occurred in late 1986 and forms the focus of our analysis of the reform period in the next section. The public sector savings rate was thus halved despite a maintenance of income. The private sector savings rate also fell sharply, presumably in an attempt to cushion consumption.

Inflation is the ultimate device the public sector has for taxing the private sector. Surprisingly, despite the fall in public income, the annual inflation rate averaged only 16 percent during the period of the slump. There were, however, two distinct phases. From 1981 to 1984 the rate averaged 24 percent and was accelerating, whereas from 1984 to 1986 it averaged only 6 percent. The growth of currency holdings is similarly dichotomized, nearly all the growth occurring during the Shagari government. A measure of the considerable fiscal achievement of the Buhari regime is that currency holdings increased by a mere 4 percent between 1984 and 1986. Even during the Shagari period, however, inflation was contained to an extent. The choice was made to reduce investment rather than to print money. Given the general ambience of waste during the Shagari years, this self-denial is noteworthy. It suggests that the government was much better at controlling broad aggregates than the

TABLE 8 Public and Private Income and Savings Rate, 1981–1986 (million naira at 1984 prices)

	Public sector			Private sector		
	Income	Savings	Savings rate (%)	Income	Savings	Savings rate (%)
1981	30,123	9,679	32.1	78,626	8,753	11.1
1982	26,570	10,493	39.5	69,698	-852	-1.2
1983	20,250	1,260	6.2	69,751	9,299	13.3
1984	19,949	4,454	22.3	72,837	17,036	23.4
1985	23,574	8,164	34.6	78,476	17,217	21.9
1986	22,345	4,150	18.5	57,458	7,206	12.5

SOURCE: Bevan et al. 1992a.

detailed content of its expenditures. The central failure of the Shagari government was not that it spent too much (although it did) but that its expenditures were so unproductive.

Relative prices and outputs. Faced with such a large external shock, relative prices were bound to change substantially so as to preserve market-clearing. To a large extent, these price changes were in the hands of private agents who accepted them. The government intervened, however, in some important markets, in particular by fixing the price of foreign exchange and the ex-factory price of many manufactures.

Although there were small devaluations during the period, the exchange rate became massively overvalued until an auction was introduced in September 1986 (the focus of the next section). A corollary was the huge excess demand for foreign exchange, which the government rationed. This gave rise both to patronage and to trade restrictions. As Gelb (1988, p. 228–29) aptly notes:

> In effect, this strategy redistributed part of the oil revenue from the government to favoured importers . . . and so severely aggravated the fiscal problem caused by falling oil revenues. Nigeria's prices moved more and more out of line with those of its trading partners. The result was a vicious cycle of rising distortions, declining efficiency, falling non-oil output, fiscal deficit, inflation, and disruptive cuts in public expenditure.

Whereas during the oil boom the main mechanism of patronage had been public expenditure, during the slump this source declined and was

replaced by rents from foreign exchange allocation. An indication of the growth in the rents from foreign exchange allocation and from the implicit tariff rates generated by import restrictions is given by the parallel markct premium over the official rate. At the start of 1981 it was only 37 percent; during 1983 it exceeded 200 percent and by 1986 was 330 percent. The refusal of the government to devalue more rapidly before its eventual policy reversal in 1986 is a highly visible policy error. As a consequence of this error, income of the export sector was reduced, and cumbersome and rationed access to imports was imposed, thus handicapping firms that depended on imported inputs. Since most of the export income accrued to the government, the main loser from the policy was the government itself. There were, however, four factors encouraging overvaluation. First, macroeconomic policy was not high on the government's agenda, and foreign exchange rationing was the automatic consequence of inertia. Second, the rents from administered allocation, which accrued disproportionately to the political elite, if not the initial motive for overvaluation, were a disincentive to its removal. Third, the economic consequences of devaluation were not well understood; it was seen as inflationary both by the popular press and within the central bank. The latter was surprised when it proved not to be so. Finally, there was a degree of "exchange rate fetishism"—a kind of emotional attachment to the current exchange rate—and, in particular, a concern that the Naira should remain at least as valuable as the U.S. dollar.

The policy of ex-factory price controls was partly motivated by a desire to restrain inflation. Even if it had been effective in holding down the consumer price of domestic manufactures, the policy would not have succeeded because the given monetary demand would have pushed up other prices more rapidly. Since the price controls were usually enforced only ex factory and not at the consumer level, however, the primary beneficiary was the distribution sector. The main exception was automobiles, where the beneficiaries were upper-middle-class consumers.

Between 1981 and 1986 real aggregate demand fell by 35 percent. This inevitably changed the relative prices needed for market-clearing: the relative price of nontradables needed to fall. Unless actual relative prices responded accordingly, we would expect an income fall of this magnitude to cause a collapse in production. In particular, in most

economies real wages would be unlikely to fall by such a large amount over such a short period, causing rising real product wages and hence unemployment and falling production. We have seen that those prices controlled by the government indeed diverged from market-clearing levels. Private agents therefore had to adjust not only to the external shock but also to the disequilibria created by government pricing policies.

In fact, during the slump nonexport production declined by only 4 percent. There was a temporary acute dip from 1983 to 1984, but this seems most likely to be explained by the drought of those years. Prima facie, a mere 4 percent fall in production in response to a 35 percent fall in demand is an indication of considerable product and factor market flexibility in the private sector. This has to be qualified somewhat because the labor force grew over the period by approximately 15 percent. Some of this growth was a result of higher unemployment, but the extent was quite limited. Although the unemployment rate rose sharply in urban areas, it remained low in rural areas, so that nationally it only rose from 2 percent to 6 percent. Hence, the employed labor force increased by around 10 percent despite the slump. This was achieved because real wages fell rapidly. Evidently, the labor market was highly flexible, but the decline in output relative to employment suggests that product markets might have been somewhat less responsive to changes in demand.

The apparent decline in output despite employment growth might, however, be mere artifact. Output might have been shifting between sectors in such a way that output declined (at 1984 official relative prices), even though the resource shifts were presumably value-enhancing at prevailing prices. More generally, for given factor availability, resource shifts in response to relative price changes require that real output rises when measured at ex post relative prices but falls when measured at ex ante prices. In Nigeria, where relative prices changed substantially in response to the shocks, this point deserves emphasis. We are able to get some indication of its importance by comparing the change in GDP during the period from 1981 to 1985 at two different sets of relative prices, namely those prevailing in FY 1977–78 (that is, approximately ex ante prices) and official 1984 prices. GDP fell by 9.5 percent when measured at FY 1977–78 prices but by only 2.1 percent at 1984 prices, suggesting that measured output growth is indeed highly

sensitive to relative prices. Because the official relative prices prevailing in 1984, which were used to construct the constant price national accounts series for the slump period, were far out of line with market clearing prices (for the reasons discussed above), they can be expected still to give some downward bias to the measured production trend.

In analyzing how relative prices changed during the slump, we use open economy macroeconomic theory to guide disaggregation. First, the distinction between tradables and nontradables is basic to the analysis of trade shocks. A negative trade shock such as Nigeria experienced reduces domestic expenditure. This spending effect changes the relative price of importables and nontradables. In the absence of quantitative restrictions (QRs) on imports, the domestic price of importables is determined by world prices, the exchange rate, and tariff rates. If all of these are exogenous, then reduced demand for importables will lead to a reduction in imports at an unchanged domestic price, while for nontradables the reduction in demand can only be accommodated by a fall in the price. Hence, the relative price of nontradables declines in terms of importables. Mobile factors (typically labor) will be drawn out of the production of nontradables and into the production of importables. Second, where trade restrictions rise in response to the shock, as they did in Nigeria, we need a further distinction between protected tradables (import substitutes) and unprotected tradables (exports). Third, we distinguish between import-dependent industries and those using mainly domestic inputs, because the former suffered from foreign exchange rationing. This substantially changes a central result of Dutch Disease: a negative trade shock may, in this case, reduce industrial output if it is directly determined by the availability of foreign exchange for the import of intermediate inputs. Fourth, since investment fell substantially relative to consumption, the demand for nontradable capital goods is likely to have fallen by more than the demand for nontradable consumer goods. Finally, since per capita income fell sharply, we distinguish between luxuries and basic consumer goods.

For concreteness, we have chosen illustrative examples of the key aggregates that result from this classification. Among the tradable goods, cocoa was an important non-oil export, cars were protected luxury goods highly dependent on imported inputs, and textiles were protected luxury goods relying more on domestic inputs (such as cotton). Among

nontradables, food crops were basic goods, services were more likely to be luxuries, and the construction sector was supplying nontradable capital goods.

We now consider the impact of the shock on these sectors. First, as shown above, total private consumption fell by approximately one quarter in real terms between 1981 and 1986 or by approximately one third in per capita terms. This spending effect would have reduced the output of nontradables through a fall in their relative price. This should affect not only the consumer nontradables (services and food) but also cars and textiles, which were still protected by QRs in this period. Hence the spending effect suggests a fall in the output of cars, textiles, services, and food. Second, the shock reduced the availability of imported inputs, affecting import-dependent industries, such as vehicle assembly, over and above the spending effect. Hence the production of cars should be particularly hard hit. Third, the decline in per capita income should lead to a relative decline in the demand for luxuries. Hence we expect demand for food (with a relatively low income elasticity) to fall less than demand for luxury consumer goods (cars, textiles, and services). This would draw labor, released from shrinking urban activities, to rural areas. Fourth, the growing overvaluation of the exchange rate would have depressed domestic cocoa prices, so we should expect a shift of labor from cocoa production to food production, reinforcing the positive effect of return migration on food output. Finally, because capital formation fell much more sharply than consumption, this should be reflected in the demand for the output of the construction sector. We therefore expect the construction sector to suffer most from the fall in real expenditure.

The actual outcomes for both output and prices are shown in Table 9. It is striking that both relative outputs and relative prices changed substantially. This is why aggregate output is so sensitive to the relative prices at which it is valued.

We can now compare our theoretical predictions for 1981 to 1986 with the actual outcomes shown in Table 9. Production of luxuries (cars, textiles, and services) fell sharply, as predicted, with the most marked decline in the import-dependent industry of car production, falling by almost two thirds in the five-year period. Construction and investment demand declined equally by 60 percent. We have predicted that basic goods (such as food) would gain under a fall in demand relative to luxuries. The combination of labor-shedding in urban activities and the

TABLE 9 Output and Prices, 1981–1986 (1981 = 100)

	Output					
	Cocoa	Cars	Textiles	Construction	Services	Food
1981	100.0	100.0	100.0	100.0	100.0	100.0
1982	89.7	316.2	121.4	79.8	100.8	104.7
1983	80.5	119.7	68.0	70.3	94.8	90.7
1984	80.5	39.9	48.8	57.3	77.7	114.4
1985	92.0	77.3	51.7	39.5	74.5	114.0
1986	57.5	36.4	44.0	39.4	77.5	138.1
	Prices					
1981	100.0	—	100.0	100.0	100.0	100.0
1982	100.0	—	107.2	113.3	99.2	109.2
1983	107.7	—	180.8	115.7	119.7	128.4
1984	115.4	—	284.4	120.5	166.3	176.8
1985	123.1	—	298.6	141.0	162.1	166.3
1986	269.2	—	390.6	175.9	169.6	153.8

NOTE: Dash = not available.

SOURCES: *Cocoa.* Output from Central Bank of Nigeria, *Statistical Bulletin,* December 1990 (CBN), p. 79. Central bank data (CBN annual report and statement of accounts) on producer prices paid by the marketing board used to construct the price index for 1981–86. 1986–90 data on world cocoa prices were used after adjusting for exchange rate changes (using the parallel market rates as reported in the World Bank *Financial Sector Report* 1991, vol. II, Table E.1) and adjusted for a slight increase in the ratio between domestic and world prices between 1986 and 1987 (World Bank, *The Nigerian Structural Adjustment Program,* 1988, Table 2.2). This procedure implies that from 1987 on, the domestic price is assumed to follow the world price (converted at the parallel exchange rate).

Cars. Output from the CBN Index of Industrial Production (IIP); no price series available.

Textiles. Output from IIP (cotton textiles); price from CBN, p. 93 (price index for clothing in the composite—rural and urban—consumer price index). The sharp drop in 1984 is a result of a non-response problem.

Construction. Output from National Accounts (NA), Federal Office of Statistics. Incorporates revisions up to 1992. (GDP in "building and construction" in 1984 prices); price from NA (implicit GDP deflator).

Services. Output from NA (GDP in "repairs and other services" in 1984 prices); price from NA (implicit GDP deflator).

Food. Output from CBN, p. 78 (total production in tons of maize, millet, wheat, acha, beans, cassava, potatoes, yams, cocoyams, plantains, vegetables); price from NA (implicit GDP deflator).

relative increase in the demand for basic goods shows up as an increase in food production. Food production rose in per capita terms by about

6 percent over the period. Because there is no reason to expect that factor productivity increased, this presumably indicates an increase in the rural labor force as a result of return migration. Finally, cocoa suffered from exchange rate overvaluation, the domestic price falling by two thirds relative to import prices between 1981 and 1984. This was reversed in the final year, 1986, as a result of the devaluation. These price changes were reflected (with some delay) in the output series. Cocoa production fell by about 40 percent over the period. Again, this would have raised food production: rural labor must have shifted from cocoa to food crops.

We now turn to evidence of the implied factor movements. While there is no direct evidence of rural-to-urban labor shifts, there is evidence from the Labour Force Surveys of December 1983 and June 1985 of shifts between sectors within the rural and urban economies themselves. The results indicate that labor shifted into agriculture within both. The proportion working in agriculture increased from 66 percent to 71 percent in rural areas and from 12.5 percent to 15.6 percent in urban areas. The only indicators of sectoral investment are the data on the sectoral distribution of loans and advances of commercial banks. This includes loans to agriculture, manufacturing, and trade. These data are a fairly poor proxy for changes in fixed capital because the loans may largely have been used for working capital requirements. They do show, however, that the share of agriculture doubled between 1981 and 1986.

What can be concluded from this analysis of relative prices and resource reallocation and the preceding analysis of asset behavior? The period from 1981 to 1986 is sometimes characterized as "stabilization without adjustment," the implication being that asset behavior was satisfactory whereas resource reallocation was not. On neither count does this description seem accurate. The asset story is essentially one of debt accumulation and investment collapse. Given the investment decline, the resource reallocation process was bound to be severely handicapped since the capital stock became virtually immobile. Yet resources evidently did move and in a direction consistent with our simple macroeconomic analysis. Clearly, such an analysis cannot be expected to account for the entire range of price and output changes in the economy. It does appear, however, that during the slump there were substantial changes in the composition of output, which were broadly explicable in terms of it. Some of these changes, notably the growth of food

production, were an efficient response to adversity indicating prompt redeployment of resources by the private sector. That is, there was considerable efficient adjustment before the government's policy reform. Other factors, notably the contraction of the cocoa and construction sectors, were arguably the consequences of inappropriate government responses. Finally, the industrial sector probably contracted in an inefficient fashion brought about by input rationing rather than price incentives. The allocative implications of the market were put to the test only in the final period of our analysis.

Reform: 1986 to 1990

Policy reforms. Despite the austerity of the Buhari regime, the economy continued to deteriorate as the government failed to address many of the dysfunctional policies it inherited. In particular, it was unwilling to undertake many of the reforms pressed on it by the international agencies, such as trade liberalization, exchange rate devaluation, or the elimination of the domestic petroleum subsidy. On the other hand, it established a credible record of fiscal reform, which was to prove important during the next phase.

The incoming Babangida government saw more clearly that austerity was not enough, and that it had to be accompanied by more positive measures of reform. A public debate was initiated on the merits of accepting an IMF adjustment package. Babangida effectively lost this debate, as it became clear that an overt deal with the IMF would be bitterly resented. The government then proceeded, somewhat idiosyncratically, to adopt a program that was fully approved by the IMF, while keeping that institution at arm's length, and accepting no financing from it.[5] This program was adopted in July 1986, during a year in which there was a further savage fall in oil revenues; world oil prices halved early in the year.

The Structural Adjustment Programme (SAP) was wide ranging, but its centerpiece was the adoption, in September 1986, of a market-determined exchange rate system and the elimination of import licensing. The new exchange rate system initially had two components. The Second-Tier Foreign Exchange Market covered all transactions and

included an auction for official foreign exchange receipts and an interbank market based on autonomous inflows of foreign exchange to the private sector. The official (first-tier) exchange rate was maintained for foreign debt service obligations. In July 1987 the two rates were unified, but downward pressure on the rate due to expansionary fiscal policies in 1988 led to a reappearance of the differential between the exchange rate on the auction—where the depreciation was partially suppressed—and the interbank rate, which was market determined. Table 10 gives these nominal exchange rates and the percentage difference between them for the reform period and the years immediately preceding it.

As demonstrated by the reemergence of a variable, but sizeable, differential between the official and parallel exchange rates, the original intention of achieving a unified and market-determined exchange rate was undermined through frequent policy changes and increasingly direct foreign exchange allocation. Firms and other users of foreign exchange were not allowed to bid directly at the auction, but had to work through the banks. Strict limits were placed on the maximum allocation to any one bank, thus greatly inhibiting the incentive to compete. Partly as a consequence of these limits, the banks were able to operate a very successful cartel, obtaining substantial rents from their foreign exchange dealings. The government tacitly connived in this arrangement, presumably because of its desire to slow the depreciation of the rate. Because the government was a net seller of foreign exchange on the auction,

TABLE 10 Nominal Exchange Rates, 1982–1990 (U.S.$/naira)

	Official	Parallel	Differential (%)
1982	1.485	0.8800	68.8
1983	1.382	0.5533	149.8
1984	1.308	0.3108	321.0
1985	1.121	0.2650	322.9
1986	0.743	0.2588	186.9
1987	0.250	0.2123	17.6
1988	0.223	0.1551	43.8
1989	0.136	0.0933	45.6
1990	0.125	0.1042	19.5

SOURCE: World Bank *Financial Sector Report* 1991.

this artificial lowering of its Naira receipts exacerbated the budget deficit, thus increasing the pressure for more rapid depreciation of the rate by fueling inflation.[6] Despite this very incomplete reform of the exchange rate mechanism, it nevertheless seems clear that it was substantially better than the previous arrangements. First, there was no sign of the extreme overvaluation of the period from 1983 to 1986 reemerging. Second, while there was a reversion to a system of direct foreign exchange allocation to the banks that was relatively insensitive to price, the allocation to ultimate users of foreign exchange was now market driven. The direct allocation did generate rents, as before, but it did so in a way that had far less malign consequence for resource allocation. Because private agents acquired foreign exchange at the parallel rate, the effect of the auction was not a relative price distortion but a loss of government revenue.

The other central component of the SAP was to be trade liberalization. This included lowering tariffs, a reduction in the import prohibition list, and the abolition of import licensing and virtually all price controls. Average nominal rates of protection initially fell from 33 percent to 23 percent. Following the completion of a tariff study, a new tariff regime was announced in the 1988 budget, with rates specified for a seven-year period, thus providing producers and consumers with a relatively stable long-term structure to reduce uncertainty. The new schedule was somewhat higher than the interim ones, so that nominal protection averaged around 28 percent. This is a substantial underestimation of the real reduction in protection, however, since this was determined before the reforms, more by the restricted availability of imports under license than by the tariffs.

Further shocks. Although the period was characterized primarily by policy reforms, the economy experienced further external shocks. Table 11 updates the information given in Table 4. Relative to the poor outcomes for 1986, there was a further deterioration in oil receipts from 1987 to 1988, followed by a recovery peaking in 1990, at which point over 40 percent of the ground lost since 1981 was temporarily recovered. The peak of the recovery was due to the Gulf War and was clearly understood to be temporary. The government said that it was going to treat the increase in revenue as a temporary shock which should not

TABLE 11 Change in Resource Inflow, 1986–1990 (Million naira at 1984 prices)

	Change in export income	Change in net capital inflow	Total change
1986	0	0	0
1987	-187	-7,796	-7,983
1988	-2,614	-5,936	-8,550
1989	4,387	-12,105	-7,718
1990	11,341	-16,409	-5,068

SOURCE: Bevan et al. 1992a.

have a long term effect on the level of government spending. It certainly began by setting up stabilization funds for this purpose, and, despite much speculation about the extent of extra budgetary spending from these funds, it does not appear to have entirely failed in this objective.

The second column in the table gives the change in resource inflow relative to 1986.

To a large extent, the resource flow had become endogenous, reflecting the rule adopted by the government of broadly limiting total debt service to around 30 percent of export earnings. In this way, the increase in export income generated an increased rate of actual debt service. Overall, the total reduction in resources relative to 1986 was fairly stable from 1987 to 1990—about 35 percent of 1986 GDE.

Table 12, the analogue of Table 5, illustrates one distinguishing feature of the post-SAP period: nonexport GDP resumes growth. Although there was little change between 1986 and 1987, the subsequent years showed an average growth of 9 percent a year. There are a number of difficulties in interpreting this change, given the highly deteriorated state of the economy in 1986 and the prevalence of excess capacity. It was, nonetheless, a high rate of growth by any standard, and extraordinary by Nigerian standards over the previous fifteen years. It is the more surprising when set alongside the investment figures, which we consider later. Despite the rapid growth of nonexport GDP from 1987 to 1990, GDE did not surpass its 1986 level until 1989. This was because of the substantial reduction in resource transfer between 1986 and 1987. In consequence, resources available

TABLE 12 GDP, GDY, and GDE, 1986–1990 (1986 = 100)

	non-export GDP	GDY	GDE
1986	100.0	100.0	100.0
1987	100.9	100.4	91.2
1988	112.3	105.9	98.6
1989	119.8	120.3	104.8
1990	129.3	136.1	114.6

NOTE: Figures do not correspond to published series because adjustments have been made in order to value output and expenditure approximately equal to relative prices instead of the highly distorted prices used in all official series.
SOURCE: Bevan et al. 1992a.

for domestic absorption declined by 9 percent even though GDP was stagnant. Subsequently, GDE followed a relatively similar path to GDP, growing an average of 8 percent a year.

One implication of these calculations is that, in terms of aggregate domestic adjustment, the problem was by no means over in 1986; there was a further sharp decline in absorption to be managed before any amelioration started.

Asset choices. How were these changes in absorption divided between investment and consumption? As Table 13 shows, the severe compression of consumption that took place between 1981 and 1986 was not further compounded; aggregate consumption was maintained between 1986 and 1987. In consequence, all of the downward adjustment was borne by investment, which fell by more than 40 percent to less than 25 percent of its 1981 level. Nor, until 1990, did investment share in the recovery that subsequently took place. As for consumption, it grew steadily at a little under 7 percent a year from 1987 to 1990. The savings rate, which had been sharply depressed in 1986, remained very low until 1989 when it recovered to more normal levels, rising to 24 percent in 1990.

Two conclusions from these figures are worth noting. First, the strong recovery in growth cannot be attributed to aggregate investment, which remained at an extremely low level, the increase in 1990 having been too late to influence output in that year. It is quite possible that

TABLE 13 Investment and Consumption, 1986–1990 (1986 = 100)

	Investment	Consumption	Savings Rate (%)
1986	100.0	100.0	14.2
1987	58.5	99.1	15.3
1988	60.8	107.7	12.8
1989	63.6	114.7	18.2
1990	91.1	120.3	24.2

SOURCE: Bevan et al. 1992a.

the National Accounts figures fail to capture all investment occurring in the relatively new, informal, post-SAP urban activities, but there are a number of other possibilities. The level of capacity utilization at the start of the period was extremely low, as already noted. Many of the previous high levels of investment were clearly very unproductive or even faked, so that there was plenty of scope for allocational efficiency gains within a smaller total. Also, the post-SAP capital intensity is likely to have been lower, partly because import substitution tends to raise capital intensity, and partly because overvalued exchange rates make imported capital goods artificially cheap. Second, consumption was protected from further compression early in the SAP, and then permitted to grow steadily at the rate of expansion of total resources.

These aggregate figures are subdivided between public and private sectors in Tables 14 and 15. As regards consumption, the stagnant or very slightly falling aggregate between 1986 and 1987 compounded a sharp contraction in public consumption by more than 15 percent, with a modest increase in private consumption of 2 percent. Thus private consumption was protected from the considerable fall in resources in 1987. Subsequently, public consumption remained at its new lower level until 1990 when it recovered to its 1986 value. Private consumption, by contrast, grew at around 7 percent a year. Turning to investment, it was again the public component which bore the brunt of the contraction. From 1987 to 1989, it effectively halved from its 1986 level, while the private component fell only to three quarters. The recovery in 1990 was shared by both sectors, with private investment surpassing its 1986 level.

TABLE 14 Public and Private Consumption and Investment, 1986–1990 (1986 = 100)

	Consumption		Investment	
	Private	Public	Private	Public
1986	100.0	100.0	100.0	100.0
1987	102.0	84.3	69.8	54.9
1988	11'.5	88.3	79.3	47.7
1989	120.5	85.3	75.0	55.0
1990	123.9	102.2	105.1	83.7

SOURCE: Bevan et al. 1992a.

In Table 15, aggregate income and savings are divided between the public and private sectors, showing a marked contrast between the two. For the private sector, income grew continuously from 1986 to 1990 at a little over 5 percent per year. The savings rate was also relatively high (averaging nearly 18 percent) and relatively stable aside from the difficult adjustment year of 1986. The public sector path was very different. Income fell by 17 percent from 1986 to 1988, then more than doubled from 1988 to 1990. The savings rate was highly volatile, but also highly procyclical. During the trough year of 1988, the public sector dissaved at nearly 11 percent; during the peak year of 1990, it saved at nearly 30 percent. Overall, after a massive decline in income during 1986, the private sector appears to have been reasonably isolated from the extreme volatility of the government's circumstances.

TABLE 15 Public and Private Income and Savings Rate, 1986–1990 (million naira at 1984 prices)

	Public sector			Private sector		
	Income	Savings	Savings (%)	Income	Savings	Savings (%)
1986	22,345	4,150	18.5	57,458	7,206	12.5
1987	20,756	1,042	5.1	59,382	11,255	19.1
1988	18,509	-2,028	-10.8	66,009	12,842	19.5
1989	26,872	6,718	25.1	69,101	10,734	15.5
1990	38,024	11,190	29.3	70,617	15,103	21.4

SOURCE: Bevan et al. 1992a.

Relative prices and outputs. In this period of reform, the government abandoned its previous resistance to relative price changes. We therefore expect relative price changes to be important for two reasons: the devaluation and the additional external shocks. First, we consider the effect of the shocks on spending. Recall that the theory explained the fall in output of importables (cars and textiles) from 1981 to 1986 as a response to the fall in private consumption. Despite the increase in consumption after 1986, the theory does not predict an increase in output because of the change in the trade regime. With a removal of quotas, a rise in consumption would be reflected in increased imports rather than in increased domestic output. Hence production of cars and textiles should not be directly affected by the spending effect, but only indirectly, because labor is drawn into other industries such as construction. Nontradables should gain from the spending effect. Hence output of services and food should rise. Again, we would expect the output of the construction sector to follow the path of investment—stagnation, with an upturn in the final year.

In the pre-SAP period, trade policy relied heavily on rationing of foreign exchange and import licensing. This was supplemented by a wide array of quantitative restrictions, including import bans for many agricultural and manufactured products. As already noted, the import licensing system was abolished when the Second Tier Foreign Exchange Market was introduced. Trade reform should reduce the profitability of import intensive industries, including assembly operations such as car production. The effect should be negative for sectors that lost QR protection (for example, car production), but not for sectors where QRs remained in force (textiles), although often evaded. The automobile industry should be negatively affected additionally through the rise in the cost of its imported inputs through the devaluation.

In Table 16 we compare the predictions with the outcomes. Output of cars indeed fell catastrophically: in 1990 output was less than 12 percent of what it had been in 1981. Recall that we have chosen cars as a proxy for import-dependent production of import substitutes. The decline of that sector was an important achievement of the SAP. For construction we find, as expected, stagnation followed by a sharp upturn at the end of the period. For cocoa there was indeed an increase in output: production increased by over 140 percent between 1986 and 1990.

rose very sharply by about one third in per capita terms, though some of this may be due to an improvement in income distribution. Food output should have risen as a result of the spending effect, and this may have been reinforced by a relative gain in demand for basic goods. But food production would have to compete with rising labor demand, both for cash crops (cocoa) and in urban activities. In the absence of sectoral employment data, we cannot be sure what the net effect has been of the contraction of import dependent production on urban employment and on the expansion of other sectors (including government employment). The analysis suggests that the negative effect must have dominated so that labor shifted from urban to rural areas; only with an increase in the rural labor force can the expansion of both cocoa and food production be explained. While there are no data to support this, there is general agreement that significant "ruralization" has indeed taken place.

Conclusion

The Nigerian economy has been distinctive in two respects. First, it has experienced two massive external shocks: a prolonged boom followed by a prolonged slump. Between 1972 and 1981 Nigeria benefited from an external windfall of substantial proportions during which there was a high investment rate. By the end of the period, however, both output and consumption were probably lower than they would have been in the absence of the boom. Between 1981 and 1990, despite production growing by approximately one quarter, real expenditure declined by the same amount. Normally, such a massive divergence between production and expenditure trends would indicate a rapid accumulation of foreign assets. Yet, far from being an African version of Japan, Nigeria increased its foreign debt from U.S. $9 billion to U.S. $33 billion. This deterioration in the asset position indicates an enormous collapse in export income, despite such an acute reduction in expenditure and the rise in production. The scale of the macroeconomic changes during the 1980s is thus at least comparable to those of the 1970s, though usually with a reversal of sign.

TABLE 16 Output and Prices, 1986–1990 (1986 = 100)

	Output					
	Cocoa	Cars	Textiles	Construction	Services	Food
1986	100.0	100.0	100.0[a]	100.0	100.0	100.0
1987	104.9	57.7	149.5	109.4	100.9	94.6
1988	229.9	38.7	151.6	120.6	102.1	120.9
1989	255.8	33.0	137.0	125.6	103.5	126.7
1990	243.8	32.4	148.2	131.7	105.5	127.5
	Prices					
	Cocoa	Cars	Textiles	Construction	Services	Food
1986	100.0	100.0	100.0	100.0	100.0	100.0
1987	121.8	118.4	104.0	109.7	160.1	108.6
1988	128.6	121.9	107.0	116.6	225.4	165.2
1989	139.6	206.6	160.5	124.4	249.5	230.1
1990	121.8	n.a.	172.5	136.4	289.1	307.5

a. 1986 figures for textiles not available; set at average of 1985 and 1987.

SOURCE: *Cocoa.* Output from Central Bank of Nigeria, *Statistical Bulletin,* December 1990 (CBN), p. 79. Central bank data (CBN annual report and statement of accounts) on producer prices paid by the marketing board used to construct the price index for 1981–86. 1986–90 data on world cocoa prices were used after adjusting for exchange rate changes (using the parallel market rates as reported in the World Bank *Financial Sector Report* 1991, vol. II, Table E.1) and adjusted for a slight increase in the ratio between domestic and world prices between 1986 and 1987 (World Bank, *The Nigerian Structural Adjustment Program,* 1988, Table 2.2). This procedure implies that from 1987 on, the domestic price is assumed to follow the world price (converted at the parallel exchange rate).

Cars. Output from the CBN Index of Industrial Production (IIP); no price series available.

Textiles. Output from IIP (cotton textiles); price from CBN, p. 93 (price index for clothing in the composite—rural and urban—consumer price index). The sharp drop in 1984 is a result of a non-response problem.

Construction. Output from National Accounts (NA), Federal Office of Statistics. Incorporates revisions up to 1992. (GDP in "building and construction" in 1984 prices); price from NA (implicit GDP deflator).

Services. Output from NA (GDP in "repairs and other services" in 1984 prices); price from NA (implicit GDP deflator).

Food. Output from CBN, p. 78 (total production in tons of maize, millet, wheat, acha, beans, cassava, potatoes, yams, cocoyams, plantains, vegetables); price from NA (implicit GDP deflator).

The nontradables, services and food, gained as predicted. In the case of services, however, the effect was quite modest, while food production

The second respect in which the economy is distinctive is the abruptness of policy change; the slump in the years following 1981 itself divides into two distinct policy regimes. In the first, spanning the years from 1981 to 1986, private resource transfers were handicapped by government pricing interventions. In the second, these interventions were substantially reduced. Thus the external shocks dichotomize the economy into distinct periods before and after 1981, while the policy is divided at 1986.

It is quite clear when the key break in economic performance occurs. There was one common feature between the boom and the slump: in both periods GDP grew by around one quarter. The switch from intense boom to intense slump made no difference to the growth of production. This suggests that whereas management of the boom was disastrous, management of the slump was reasonably satisfactory. Within the whole period from 1981 to 1990, however, all the growth occurred after 1987. Indeed, since 1987, the economy has enjoyed its most rapid sustained growth. The legacy of economic management up to 1986 was one of unproductive capital stock and large accumulated external debts. It is possible to identify many aspects of the post-SAP policy regime that remained inefficient, such as protection of industry and overvaluation of the exchange rate. It appears, however, that sufficient policy changes were made to enable the private sector to achieve growth rates more commonly associated with East Asia than with Africa. Whether these growth rates are sustainable must remain an open question.

NOTES

1. We use a discount rate of 10 percent and show the present value in 1970.
2. Total GDP is not shown because it followed nonexport GDP closely.
3. Drought explains in part the particularly poor years of 1983 and 1984.
4. For investment purposes the private sector here includes all public entities outside the federal government.
5. There was a stand-by arrangement with the IMF, but no loans were made under this facility.
6. For example, in 1988 and 1989 the government lost almost one third of its foreign exchange revenue (net of debt service) in this way.

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