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# Federal Republic of Nigeria
# Health Care Cost, Financing and Utilization

(In Two Volumes)   Volume I: Subsector Report

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Western Africa Department
Population and Human Resources Operations Division

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## ABBREVIATIONS AND ACRONYMS

| | | |
|---|---|---|
| AHCS | = | African Health Consultancy Services |
| AVSC | = | Association for Voluntary Surgical Contraception |
| BHSS | = | Basic Health Services Scheme |
| CEDPA | = | Center for Education Development and Population Activities |
| CHW | = | Community Health Workers |
| CIDA | = | Canadian International Development Agency |
| DAF | = | Directorate of Adminstration and Finance |
| CPI | = | Consumer Price Index |
| DHPRS | = | Department of National Health Planning, Research and Statistics |
| DNHP | = | Directorate of National Health Planning |
| DPT | = | Diphtheria, Pertussis and Tetanus |
| DRF | = | Drug Revolving Fund |
| ED | = | Essential Drug |
| EDF | = | European Development Fund |
| EDP | = | Essential Drugs Program |
| EEC | = | European Economic Community |
| EPI | = | Expanded Program on Immunization |
| FHI | = | Family Health International |
| FMFED | = | Federal Ministry of Finance and Economic Development |
| FMOH | = | Federal Ministry of Health |
| FP | = | Family Planning |
| FPIA | = | Family Planning International Assistance |
| HMD | = | Hospital Management Board |
| IDRC | = | International Development Research Center |
| JHUPCS | = | John Hopkins University Population Communication Services |
| JHUPIE | = | John Hopkins University Program for International Education |
| LDC | = | Less Developed Country |
| LGA | = | Local Government Authority |
| MCH | = | Maternal and Child Health |
| MFED | = | Ministry of Finance and Economic Development |
| MOH | = | Ministry of Health |
| NEDP | = | Nigerian Essential Drugs Program |
| NGO | = | Non-Governmental Organization |
| NPB | = | National Population Bureau |
| NPC | = | National Population Commission |
| ODA | = | Overseas Development Administration |
| PHC | = | Primary Health Care |
| PHCCU | = | Primary Health Care Coordinating Unit |
| RMN | = | World Bank Resident Mission, Nigeria |
| SHMB | = | State Health Management Board |
| SIDA | = | Swedish International Development Authority |
| SMOH | = | State Ministry of Health |
| TFR | = | Total Fertility Rate |
| UNDP | = | United Nations Development Program |
| UNFPA | = | United Nations Fund for Population Activities |
| UNICEF | = | United Nations Children's Fund |
| USAID | = | U.S. Agency for International Development |
| WHO | = | World Health Organization |

## FISCAL YEAR

January 1 - December 31

# NIGERIA: HEALTH CARE COST, FINANCING AND UTILIZATION

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NIGERIA HEALTH SECTOR REPORT

Executive Summary

A.    Introduction

1.        Nigeria has a commendably comprehensive National Health Policy
which recognizes that "Primary Health Care is the key to attaining the goal
of health for all the people." However, Nigeria's public health care
services have serious shortcomings. Ironically, demand is decreasing while
the number of potential users is rising. Staff do not adequately serve
rural areas; facilities suffer from poor maintenance; and most public
sector health care providers have few drugs for their patients. The report
examines these problems in the context of public sector spending while
noting that private health expenditure is also significant: individuals
spend money on pharmaceuticals and on traditional healers, and in addition,
the private sector is active at primary, secondary and tertiary levels.

2.        The comparative efficiency of public and private facilities is
examined in depth, using data from Ogun State. Against this background,
the household demand for health care in Ogun State, from both private and
public sources, is analyzed. Opportunities for policy adjustment,
including cost recovery, are then developed. The report concludes that
although the basic components may be in place for an effective health care
program, in Ogun State specifically and in Nigeria in general, adjusting
these components could provide a more balanced and responsive program. To
achieve its goal of "Health for All by the Year 2000" the Government will
need to recognize the complementary role of the private sector and insure
that limited public sector health resources are used as efficiently as
possible.

3.        This study concentrates on Ogun State and treats it as a
paradigm for the Nigerian health system. This stems from the fact that the
Federal Ministry of Health has given the Bank access to the results of an
unusually thorough and comprehensive survey of health care facilities and
consumers that took place in the State in 1987. It must, however, be
stressed that this study analyzes data from only one state. The findings
may be applicable only to the extent Ogun State is similar to other
regions. Nevertheless, the results highlight general areas for concern for
other states to consider.

B.    Health System

4.        Nigeria s health system has made great strides in improving
access to health facilities. Since Independence in 1960, and especially
since 1975, Nigeria has trained thousands of doctors, nurses, midwives,
medical technicians, pharmacists, dentists and community health workers,
and has rapidly increased the number of hospital beds. The resulting

ratios of health professionals to population compaie very favorably with ratios in countries with per capita national incomes similar to Nigeria: the comparative data (for 1984) on population per nursing person in Sub-Saharan Africa show Nigeria had about three times the number of physicians as the regional average, and twice the number of nursing staff.

5.      Many states have an adequate network of dispensaries, clinics, health centers, maternities, and hospitals of various sizes, at least in the urban areas. Many of these facilities are relatively new and have a sufficient complement of equipment, although not necessarily in a good state of repair. In addition, people in many parts of the country can choose between private or publicly run health facilities. But the health status of the population is not as high as it could be in relation to investment in the health sector.

6.      Health Status. Nigeria's health status indicators place it on a par with many of its poorer neighbors. For example:

(a)   Infant mortality in 1988 was higher in Nigeria (103 per 1,000 live births) than in Togo (92) and Ghana (88).

(b)   One quarter of Nigerian babies had low birth weights in 1985, a proportion notably higher than in Ghana (17 percent), Togo (20 percent), Benin (10 percent), and Niger (20 percent).

(c)   Life expectancy at birth for Nigerians (51 years in 1988) was average for Sub-Saharan Africa and shorter than life expectancy in Togo (53), Liberia (54), and Ghana (54).

7.      The need for greater emphasis on preventive care is borne out by the figures. As in many sub-Saharan African countries, an overwhelming number of deaths in Nigeria are due to preventable infectious and parasitic diseases, in particular measles, malaria, pneumonia, and diarrhea. Childbearing women are especially at risk in Nigeria because of frequent pregnancies and closely spaced births starting at a very young age, and because of medically inadequate and hygienically inappropriate child delivery techniques. In addition, most mothers receive no form of modern pre- or postnatal care at all.

8.      Underutilization. As stated above, the principal challenge is to improve the ability to provide useful medical services and thus increase the number of satisfied users. Ironically, demand for health services seems to be decreasing even as population grows. Some elements that contribute to underutilization in Nigeria's public health sector include:

(a)   the predominance of large, curative, hospital-based programs as opposed to smaller, more dispersed, preventive care programs;

(b)   poor management, with a fragmented system that lacks coordination and provides a weak referral network; and

(c)   lack of supplies and functioning equipment and, above all, a lack of drugs.

9.        Financing.  One underlying reality that exacerbates Nigeria's health care problems is the decreasing availability of public funds at the federal, state and local levels.  State and local spending in Nigeria is highly dependent on federal aid, but the Federal Government is itself highly dependent on oil revenue  The downturn in the oil market in the early 1980s seriously reduced the resources available for public spending.  The allocation to the public health sector has fallen sharply:  the actual federal health budget (recurrent and capital) in 1990 was only 40 percent in real value that of 1981.  By comparison, the total actual federal budget in 1990 was over 90% of the real value of 1981, indicating that allocations to the health sector have been cut back relative to other parts of the government.

10.        The squeeze is felt through the system, with the fall in oil revenue in the middle 1980s.  Examination of the state and local data for the 1980s shows that recurrent expenditure on items such as maintenance, medical supplies and drugs has been cut back to the barest minimum, while personnel costs have increasingly dominated recurrent outlays.

11.        The drop in oil revenues helps explain the fiscal crisis in Nigeria's public health sector at a macro level.  At the micro level, the public health sector faces a low allocation of resources and an inadequate system of cost recovery.  Short of cash, the system provides services of poor quality.

C.   Findings

12.        Households.  Using a sample of 4,898 household interviews with over 22,000 individuals and of 1,763 adults who reported an illness in the four weeks prior to the survey, the study analyzes how people sought treatment.  For the first treatment, 68 percent headed to a public facility and 23 percent to a private one.  The balance sought treatment at a pharmacy, or from a traditional healer or spiritualist.  Twenty-nine percent of the total sample of ill people (including children and pregnant women) did not seek treatment of any kind.

13.        The majority of the lowest income group seek health from public facilities while the highest income group makes more use of private facilities.  But the more wealthy groups do not avoid public facilities: over half of the highest income groups who used a facility used a public facility.  As expected, of all income groups, self treatment is greatest in the lowest income groups.

14.        Although price is significant in selecting health care, it is of small magnitude.  Of more significance is the perceived quality of the facility.  Measures of quality used were limited, but provide good indicators of basic issues:  drug availability, physical condition of the facility, and investment on provision of care.   The first two were highly significant, and the third significant at a low level.  It appears that higher prices can be offset by higher quality:  if revenues from higher prices at public facilities are used to increase care quality, especially with respect to availability of drugs and quality of the facilities, usage

of these facilities (and of modern health care in general) might well increase.

15.      Facilities. An inventory of the 445 modern health care facilities in Ogun State was undertaken. A detailed survey was made of 86 of these facilities to collect information on utilization, costs, revenues and cost-recovery programs. This survey included public and private facilities. It was found that for both inpatient and outpatient services facilities are operating with marginal cost less than average cost, especially for outpatient services, highlighting the opportunities for increasing returns to scale for admissions and nearly constant returns to scale for visits. The fact that even private sector providers were not achieving a minimum acceptable technical efficiency of 600 visits per health worker per year was surprising. The allocative analysis showed that public sector facilities are not using cost-minimizing combinations of health workers and support staff; the relative productivity of non-health workers is less than their relative wage, suggesting health care providers should re-examine their use of such staff to ensure that they are fully and optimally employed.

16.      The facility analysis concluded that costs in the public sector could be reduced: by changing the relative number of support staff and/or increasing the number of health workers (to the extent that the various types of staff are fungible); by eliminating underutilization of inpatient services by reducing the number of beds (possibly by privatization); and by increasing demand (by improving the quality of care).

17.      Strategies for Cost Recovery. The results from assessing what people do when sick, and how much it costs to provide health care facilities were combined in simulations of possible cost-recovery strategies. The results show the estimated relative change in magnitude and direction, rather than the actual net loss or surplus. The results are illuminating for policymakers, showing that if public sector prices are raised, the probability of seeking public sector care changes only marginally depending on the response of the private sector, but the revenue impact is large. This increase in revenue, if invested in the facilities, could then result in an increase in public sector visits. However, price increases which are not subsequently or concurrently rewarded with quality improvements, are likely to result in a loss of demand that could overwhelm the revenue expectations. Handling cost recovery and investment effectively will require both commitment and good management.

18.      These results highlight the major role that perceived facility quality plays in the decisions which patients make. But quality change can have very large cost implications, which could swamp revenue effects. Therefore the specific quality improvements need to be carefully selected, choosing those which are most cost-effective, providing the greatest demand response for the least amount of investment. Making this selection efficiently will require adequate information systems at the facility level.

D. **Recommendations**

19.     The analysis in this report of data from Ogun State suggests
that the Federal Government of Nigeria could usefully consider the
following actions/reforms for the public health sector:

(a) <u>Improve cost recovery through higher fees consistently applied.</u>
    The analysis suggests that higher fees will not significantly
    discourage potential users. On the contrary, assuming that more
    funds are available to purchase supplies, maintain equipment,
    and to build an adequate inventory of drugs, usage will likely
    remain at present levels or increase despite the higher fees.

(b) <u>Protection of the very poor.</u> Even if usage of needed health
    care by the poor were not greatly affected by fee increases, the
    financial burden on the poor of paying the fees would be
    important. Any move to increase charges for health care should
    be accompanied by measures designed to reduce the financial
    impact of such charges on the poorest people. The most obvious
    approach would be directly to identify those who are poor and
    either to exempt them from charges or to subsidize them.

(c) <u>Encourage fee collection through retention at site.</u> Enabling
    facilities to retain at least part of their fees at site (to use
    as investment funds and/or incentive payments) would provide
    flexibility to local managers and opportunities for improved
    responsiveness.

(d) <u>Ensure an adequate supply of drugs, funded through sustainable
    drug revolving funds on a cash-and-carry basis.</u> Given the high
    rate of "self-medication" reported, it is recommended that
    efforts to provide safe and affordable drugs through public
    health facilities be strengthened and monitoring of public
    outlets be improved. A sustainable drug revolving fund needs a
    transparent payment system, with reimbursement for the poor
    rather than exemptions at the door.

(e) <u>Strengthen the referral system through clear price signaling.</u>
    Patients should be encouraged to use the primary health care
    outlets first, paying less there than for treatment in the
    emergency room of a hospital.

(f) <u>Reduce share of recurrent costs spent on personnel.</u> Personnel
    costs, which absorb up to 95 percent of recurrent budgets, need
    to be reduced in order to release funds for drugs, medical
    supplies and maintenance. The analysis indicates that the ratio
    of non-health workers to health workers is higher in public than
    in private hospitals, suggesting adjustments could be made here
    without hurting efficiency. Also, given the urban bias of
    staff, redeployment could provide better service to the
    currently underserved rural areas.

(g) <u>Coordinate public and private health sector supply</u>. In both personnel and facilities, coordination could be improved to the general benefit of the public. Recognizing that many health personnel, especially physicians, are already working in both the public and private sectors, this practice should be regularized. With respect to facilities, rather than duplicating the provision of services, the public sector could concentrate more on preventive care and the private on curative care, which already appear to be their self-selected directions.

(h) <u>Establish effective management information systems</u>. In order to implement, monitor and evaluate adjustments in health policy, basic data needs to be regularly collected and analyzed.

## E.    Postscript

20.       This report analyzes opportunities for reform, reviews the possible consequences, and confirms the general direction in which the Federal Ministry of Health has already moved. The report focuses on the situation in the mid-1980s. Since then, the National Health Policy has been formulated, and the public health budget has increasingly been reoriented toward primary health care. The Model Primary Health Care Program has been introduced, under which each LGA receives a one-time grant to upgrade its services. Personnel training has been scrutinized and some initial efforts at manpower planning have been undertaken. States have been assisted in the preparation of detailed health sector budgets to aid in financial planning. All these moves are in accord with the findings of this report. It is hoped that this analysis will assist policymakers in their continued efforts toward achieving "Health for All" through an effective public health care system. Additional resources--from consumers, from government, and from external agencies--can also assist in making these improvements.

a:execsum (HD-NIR1)

# NIGERIA: HEALTH CARE COST, FINANCING AND UTILIZATION

## I. RECENT PERFORMANCE OF THE NIGERIAN HEALTH SECTOR

### Introduction

1.01    Health conditions in Nigeria improved in the decades following Independence in 1960, but they remain at a low level. While infant mortality and child death rates have been reduced, they are still high compared with countries at similar levels of development. Nigeria's public and private health care systems expanded rapidly during the oil boom of the late 1970s, bringing big improvements in the ratio of health facilities and personnel to population. But sharp cutbacks in public spending since 1981 (following the end of the oil boom) have caused a deterioration in the physical condition of health facilities and their utilization rates.

1.02    Aside from lowered public spending, Nigeria's health care system suffers from inefficient use of resources and from urban bias. Budget problems may be contributing to inefficiency. Since shrinking budgets are widely skewed in favor of personnel costs, fewer resources are available for drugs, maintenance, equipment and supplies. When facilities lack supplies and drugs, people stay away. Lowered public spending also may abet the health system's urban bias. Private health providers tend to invest in cities, where potential patients are more numerous and profits are higher. If the government fails to build health facilities in rural areas, almost no one else does. Many of these problems are typical of developing countries. This report will attempt to place them in their Nigerian context and, it is hoped, contribute to an understanding of them as they arise in other African countries. Using state-level data1/ of household demand for health care and of facilities supplying health care, the issues are analyzed in depth to identify policy adjustments to address these problems.

1.03    The materials used in preparing this report focus on the period of the mid-1980s. Since then the National Health Policy has been formulated (1988) and the public health budget increasingly reoriented toward primary health care. States have been assisted in the preparation of detailed health sector budgets to aid in financial planning. These moves are in accord with the findings of this report, which highlight the need to continue such adjustments to meet the goal of "Health for All by the Year 2000."

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1/    The comprehensive survey work was undertaken in Ogun State at the request of the Federal Ministry of Health (FMOH) by African Health Consultancy Services Ltd. (AHCS) of Lagos, who designed and administered the questionnaires and synthesized the results in three volumes. The analysis in this report is built upon the work of AHCS, which the FMOH made available to the World Bank.

## A. Population

1.04     Nigeria's large and rapidly growing population of 117.2 million2/ is complicating the country's goal of providing health care to all its citizens. Nigeria is Africa's most populous country and ranks among the ten most populous nations of the world.3/ Annual population growth is currently estimated at about 3.1 percent, up from 2.5 percent during 1965-73 and 2.7 percent during 1973-83. The 1981-82 Nigeria Fertility Survey estimated the total fertility rate (TFR) at 6.3.4/ Table 1.1 summarizes Nigerian demographic and socio-economic indicators compared with some other countries.

1.05     High fertility and declining mortality have produced a very young population and a high dependency ratio. About 48 percent of Nigeria's population is less than 15 years old. Nigeria's dependency ratio (which compares the under-15 and over-64 population to the working-age population) is estimated at 0.98. This figure indicates that every working adult must support, educate, and provide health care for one other person. Declining death rates enable more and more children to survive to reproductive ages, building a wider base for further acceleration of population growth.

1.06     Population Projections. Without strong measures to curb fertility, Nigeria's population will likely double by the year 2010. Conditions in Nigeria conducive to rapid population growth include high fertility rates, strong pronatalist attitudes, a low level of contraceptive knowledge and use, decreases in the duration of both breastfeeding and postpartum sexual abstinence among urban and educated women, and an increasing proportion of young people in the population.

1.07     Three alternative population projections for Nigeria up to the year 2020 appear in Table 1.2. The "slow decline" projection assumes that fertility will fall slower than in the standard projection, with fertility declining to replacement levels by 2070. The "standard decline" projection assumes that fertility will begin to fall in 1985-1990, then continue to

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2/     1990 staff estimates.

3/     The land area of Nigeria is 924,000 sq.km.; population density averages around 127 persons per sq.km.

4/     This figure, while lower than the Bank's 1988 estimate of 6.6, is still very high. Two countries with per capita incomes close to Nigeria's (Ghana and Sudan) have similar estimated total fertility rates (6.4). Preliminary data from the 1990 Nigeria Demographic and Health Survey estimates the TFR at 6.0. In Nigeria, regional fertility differences are more important than urban and rural differences.

Table 1.1
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COMPARATIVE INDICATORS OF POPULATION, HEALTH AND NUTRITION STATUS
FOR NIGERIA AND SELECTED COUNTRIES
(1988 Data Unless Stated Otherwise)

| Country | GNP Per Capita (US$) | Total Fertility Rate | Average Annual Rate of Population Growth (1980-88) | Life Expectancy at Birth | Crude Death Rate | Infant Mortality Rate | Risk of Dying by Age 5 Fem. | Male | Daily per Capita Caloric Supply a/ | Caloric Supply As Percent of Total Requirement |
|---|---|---|---|---|---|---|---|---|---|---|
| NIGERIA | 290 | 6.6 b/ | 3.3 | 51 | 15 | 103 | 151 | 170 | 2148 | 94 |
| Other Anglophone African Countries: | | | | | | | | | | |
| Ghana | 400 | 6.3 | 3.4 | 54 | 13 | 88 | 126 | 144 | 1759 | 77 |
| Kenya | 370 | 6.9 | 3.8 | 59 | 11 | 70 | 95 | 110 | 2060 | 90 |
| Lower-middle-Income Countries | 1380 | 3.9 | 2.3 | 65 | 8 | 57 | 64 | 75 | 2733 | 120 |
| Other Countries with Similar Per Capita Income: | | | | | | | | | | |
| Zambia | 290 | 6.7 | 3.7 | 53 | 13 | 78 | 108 | 124 | .. | .. |
| Uganda | 280 | 7.3 | 3.2 | 48 | 17 | 101 | 147 | 167 | 2344 | 103 |
| Niger | 300 | 7.1 | 3.5 | 45 | 20 | 133 | 204 | 206 | 2432 | 106 |
| Pakistan | 350 | 6.6 | 3.2 | 55 | 13 | 107 | 139 | 128 | 2315 | 101 |
| India | 340 | 4.2 | 2.2 | 58 | 11 | 97 | 118 | 120 | 2238 | 98 |
| Sub-Saharan Africa | 330 | 6.7 | 3.2 | 51 | 16 | 108 | 154 | 172 | 2096 | 92 |

Source: "World Development Report 1990; Poverty". Oxford University Press, New York, 1990.

Note: .. = Not available.

a/ Data are for 1986. 2,285 calories are considered 100%.
b/ Estimated at 6.3 in Nigerian Fertility Survey, 1981-82.

c:nir (ja)

fall by the average rate for countries that have already undergone the transition to lower fertility, finally reaching replacement levels by 2040. The third projection assumes a "rapid decline" in fertility, starting in 1985-1990, to replacement levels by 2015; this projection generates a TFR of about 4 in 2000, and therefore represents Nigeria's course of fertility decline under its declared policy target. Nigeria's youthful age struct᠁᠁ produces a momentum that will insure a population of more than 150 millio᠁ by 2000 even using the most optimistic projection of fertility decline (the third scenario). Future Nigerians may have to deal with a population of 380 million by 2025 (assuming "slow" decline) or with a population of 224 million (assuming "rapid" decline).

Table 1.2

NIGERIA: POPULATION PROJECTIONS 1985-2025
(In Millions)

| | Slow Fertility Decline a/ | | | Standard Fertility Decline b/ | | | Rapid Fertility Decline c/ | | |
|------|------|------|------|------|------|------|------|------|------|
| | Pop. | Growth Rate | TFR d/ | Pop. | Growth Rate | TFR d/ | Pop. | Growth Rate | TFR d/ |
| 1985 | 99.7 | | | 99.7 | | | 99.7 | | |
| | | 3.2 | 6.7 | | 3.2 | 6.7 | | 3.2 | 6.7 |
| 1990 | 117.2 | | | 117.2 | | | 117.2 | | |
| | | 3.4 | 6.8 | | 3.1 | 6.2 | | 2.7 | 5.5 |
| 1995 | 136.6 | | | 136.6 | | | 134.2 | | |
| | | 3.6 | 6.8 | | 3.0 | 5.8 | | 2.3 | 4.5 |
| 2000 | 165.8 | | | 159.0 | | | 150.8 | | |
| | | 3.5 | 6.5 | | 3.0 | 5.3 | | 2.1 | 3.7 |
| 2005 | 198.0 | | | 184.5 | | | 167.2 | | |
| | | 3.4 | 6.1 | | 2.8 | 4.8 | | 1.8 | 3.0 |
| 2010 | 234.7 | | | 212.3 | | | 182.6 | | |
| | | 3.3 | 5.8 | | 2.6 | 4.3 | | 1.5 | 2.4 |
| 2015 | 276.9 | | | 241.6 | | | 196.4 | | |
| | | 3.2 | 5.4 | | 2.4 | 3.8 | | 1.4 | 2.3 |
| 2020 | 325.6 | | | 271.7 | | | 210.1 | | |
| | | 3.2 | 5.0 | | 2.1 | 3.3 | | 1.3 | 2.2 |
| 2025 | 381.4 | | | 301.7 | | | 224.0 | | |

Source: Africa Region Population Projections, 1990-91 Edition, Working Paper WPS 598, World Bank.

a/ Slow Fertility Decline: TFR slowly declines, starting 1985-90, to replacement level (net reproduction rate = 1) by 2070.

b/ Standard Fertility Decline: TFR declines beginning immediately (1985-90) to replacement level by 2040. Prediction based on history of fertility decline in countries that have experienced the transition.

c/ Rapid Fertility Decline: TFR declines beginning 1985-90 to replacement level by 2015.

d/ Total Fertility Rates (TFR) and growth rates are for the quinquennium ending in the year identified.

B. Health

1.08 Health Status Indicators -- Mortality and Morbidity. Nigerian fertility rates have stayed high while mortality rates have declined. The crude death rate was almost halved during 1965-87, from 27 to 15 per 1,000. Overall life expectancy at birth is around 51 years, up from 39 years in 1960.

This figure is 14 years less than the average for lower-middle income countries but the same as that for Sub-Saharan Africa and closer to the levels prevailing among Nigeria's poorer neighbors, such as Benin (51 years), Togo (53 years) and Niger (45 years). Infant mortality is estimated at 105 per 1,000 live births (down from 140 in 1970), close to the average of 109 for Sub-Saharan Africa5/. In addition to poor health and inadequate coverage by the health services, the high fertility levels contribute to the observed high maternal mortality rate of 1,500 per 100,000 live births. 6/ Decreases in mortality will likely continue as medical and public health services expand in rural areas, where health facilities have historically been lacking and where about 70 percent of the population resides.

1.09      Four elements help explain these high mortality rates:

    (a)   The toll of infectious and parasitic diseases is high: about 80 percent of such deaths are from preventable diseases.7/

    (b)   Probably fewer than 30 percent of pregnant women receive any form of modern pre- and postnatal care.

    (c)   Traditional practices, particularly for child delivery, are often medically inadequate and unhygienic.

    (d)   Frequent pregnancies and closely spaced births starting at very young ages damage the health and nutritional status of mothers and infants.

1.10      Nutrition. The already high levels of acute malnutrition, coupled with recent increases in food prices, are expanding the population at risk. This is a serious and growing problem in Nigeria. The data suggest that malnutrition is most prevalent among infants and young children. A 1984 survey found approximately one fifth of children under five with weight-for-height at least two standard deviations below the median of a reference population -- a high proportion in comparison to the past and to regional standards.8/ Similarly 25 percent of all babies have low birth weights (less than 2500 grams).9/ Such widespread malnutrition in an environment of high population growth, infection and illiteracy has serious implications for

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5/      World Development Report, 1990.

6/      Federal Ministry of Health.

7/      The principal diseases are measles, malaria, pneumonia and diarrhea. Other common infectious diseases include gonorrhea, pertussis (whooping cough), schistosomiasis, chicken pox, and tuberculosis. All are diseases that could be readily treated by primary health care providers. (Data from the FMOH, Dept. of National Health Planning, Research and Statistics.)

8/      Nigerian Integrated Survey of Households, Federal Office of Statistics, 1984.

9/      World Development Report, 1990.

the survival of children. However, to the extent that the foods selected are
nutritionally poor and intrahousehold food distribution favors adult males,
some improvement could be achieved through education in nutrition.

## C.   Utilization of Health Services

1.11     Service Quality and Lack of Drugs. Nigeria's health delivery
system consists of an extensive network of relatively well-staffed public and
private facilities, with impressive expansion since Independence. About 80
percent of these facilities are in the public sector; the private facilities
are concentrated in the South. Approximately 75 percent of health facilities
are in urban areas, serving about 30 percent of the population. The paramount
issue facing the health sector is the declining quality and use of public
health services. This situation stems from the financial constraints imposed
on public spending by the decline in Nigeria's oil revenues. While the system
expanded in the late 1970s and early 1980s, federal health expenditure fell by
60 percent during 1981-90 in real terms (based on actual budgets). Sharp
declines are also thought to have occurred at the state and local levels.
Because the cuts initially led to cancellations of capital projects, the
impact on health services was limited. As the cuts became more severe,
personnel costs, which tend to be inflexible, began to claim an increasing and
disproportionate budgetary share.10/

1.12     Drugs. Shrinking budgets also caused deep cuts in operational
spending, especially for drugs. An adequate supply of appropriate drugs is
essential to any health service delivery system. Public sector health
facilities in particular have persistently low drug stocks, and commercial
pharmacies often have very limited supplies. Lack of drugs reduces the
productivity of health personnel. When the public becomes aware that public
health facilities have no drugs, people bypass their services and attempt to
obtain drugs directly.11/

1.13     Health Personnel. Nigeria has made great efforts to expand health
services, especially in training and deploying health manpower. For instance,
the number of doctors quadrupled to 16,145 during 1975-87. The resulting
doctor-population ratio of 1:6,603 compares well with that of other low-income

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10/    For instance, in Oyo State nonpersonnel recurrent costs decreased
       from 35% to under 7% during 1981-84. In some LGAs, less than 1% of
       the budget was available for nonpersonnel expenditure. This
       shrinking of nonpersonnel recurrent expenditure is discussed further
       in Chapter III.

11/    This was confirmed by a preparatory study for the Population and
       Health Project for Imo State which found that lack of drugs and other
       supplies and higher user fees were the main reasons people cited for
       not using public health services. In Kano State, outpatient
       attendance fell from 104 visits per 100 persons to 40 per 100 during
       1981-85. Chapter V.B finds lack of availability of drugs a crucial
       factor in determining clinic attendance in Ogun State.

countries.12/ During the same period, the number of nurses tripled from 17,904 to 56,120 (a ratio of 1:1,900), and the number of midwives more than tripled, from 13,101 to 45,852. Hospital beds almost doubled during 1975-87.13/ The resulting ratios of health professionals to population compare very favorably with ratios in countries with per capita national incomes similar to Nigeria: the comparative data (for 1984) on population per nursing person in Sub-Saharan Africa show Nigeria had about three time the number of physicians as the regional average, and twice the number of nursing staff.14/

1.14    Despite these undeniable advances, the system is plagued by low service quality and poor distribution of facilities. Many government health facilities (particularly rural facilities at the primary level) are undersupplied, inadequately staffed, and in poor physical condition. Although the health sector has recorded impressive reductions in mortality rates, as noted in paragraph 1.09, many deaths are still due to preventable diseases.

1.15    Inadequate and imbalanced allocations of funds are clearly affecting the operation of health care facilities. A study to identify the reasons for severe underutilization of public sector health facilities in Imo State cited "limited access, in time and cash relative to the service provided, lack of supplies and equipment, and high costs." 15/

1.16    The poor service stemming from inadequately supplied facilities is a priority problem. In addition, four other constraints have adversely affected the public health sector: (i) an inadequate emphasis on preventive and primary health care; (ii) institutional fragmentation and duplication; (iii) poor manpower planning; and (iv) inadequate cooperation between the public and private sectors. These points are discussed below.

    (i) Inadequate emphasis on preventive and primary health care has been decried in health policies since the mid-1970s. Nonetheless, analysis of recent state health budgets reveals that the emphasis on curative care, which has always been high, grew in the early 1980s. In eight states for which data are available, curative care increased from 72 percent to 81 percent of the health budget during 1981-85. See Table 1.3.

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12/    This is somewhat below the average for middle-income countries (1 doctor per 4,800 people). Of the doctors, 18% were foreigners.

13/    These figures are from the FMOH, which provides a detailed series and covers several categories of manpower and facilities.

14/    World Development Report, 1990

15/    Attah, E. B. "Underutilization of Public Sector Health Facilities in Imo State, Nigeria," PHN Technical Note 86-1 (Washington, D.C.: World Bank, January 1986). Also flagged were "harsh and uncaring attitudes on the part of health care providers, nepotism in the delivery of services, diversion of services and supplies from public to private facilities, and the imposition of unofficial 'surcharges' for service."

## Table 1.3

### CURATIVE CARE AS A PERCENTAGE OF HEALTH RECURRENT
### EXPENDITURES AT ALL GOVERNMENT
### LEVELS IN NIGERIA

|  | 1981 | 1982 | 1983 | 1984 | 1985 |
|---|---|---|---|---|---|
| Federal | 85.5 | 86.2 | 85.2 | 83.1 | 85.7 |
| States a/ |  |  |  |  |  |
| Anambra | n.a. | n.a. | 81.8 | 81.8 | 73.6 |
| Cross River | 67.1 | 63.5 | 63.9 | 64.2 | 83.1 |
| Imo | 79.6 | 80.0 | 75.4 | 82.5 | 82.5 |
| Lagos | n.a. | n.a. | 74.0 | 84.9 | ·n.a. |
| Ogun | 79.4 | 77.2 | 79.6 | 87.3 | n.a. |
| Ondo | 70.7 | 71.4 | 74.3 | 78.0 | n.a. |
| Oyo | 83.6 | 85.6 | 83.9 | 78.7 | 83.5 |
| Sokoto | 50.6 | 57.0 | n.a. | n.a. | n.a. |
| Avg. States | 71.8 | 72.5 | 76.1 | 79.6 | 80.7 |
| LGAs b/ |  |  |  |  |  |
| Oyo, Oyo | 74.0 | 72.7 | 37.3 | 59.1 | 63.9 |
| Ibadan. Oyo | 22.9 | 20.8 | 20.9 | 25.8 | 33.1 |
| Ibarapa, Oyo | n.a | n.a | 67.0 | 69.0 | 71.5 |
| Avg. LGAs | 48.5 | 46.8 | 41.7 | 51.3 | 56.2 |

Source: Annex F, Tables 9, 10 and 25.
a/ Recurrent expenditure is considered as curative at the state level.
b/ Within LGAs, curative is discrete from other expenditure categories.


(ii) **Institutional fragmentation and duplication** are particularly
serious at the state level, where the functions of State Ministries of Health
(SMOH) and State Health Management Boards (SHMB) (see para 2.10) often
overlap. In addition, many states have launched programs without regard to
services already provided (if inadequately) by LGAs. Local authorities
generally lack the technical and managerial capacity to fulfill their mandate
of providing PHC services. They have begun to receive state assistance only
recently. Yet the states have limited ability to provide the needed technical
and logistical support. Their capacity to provide in-service and management
training and health education is divided among various SMOH and SHMB programs.
More recently, the model PHC program of the FMOH has been targeting the needs
of the LGAs, of which about one-quarter have now received federal assistance.
That federal, state and local health providers often compete for the same
patients reflects the weakness of the referral system. In addition, the
positive contribution which the private sector can make is poorly recognized or
utilized.

(iii) **Manpower planning** is limited. Little effort has been made to link
national priorities in preventive and primary health care with the appropriate
training of health manpower. Priorities badly need to be redirected. Vast sums
have been spent to train health service professionals (doctors and nurses) whose

main interest is to work in urban hospitals. Community health workers (CHW), especially at the village level, need to be retrained and reoriented away from facility-based care. Current efforts to revise the clinical manual should assist the CHW to improve the general quality of care.

(iv) **Effective cooperation with the private sector (modern or traditional)** is already a feature of health systems in many African countries. Not so in Nigeria, where the private health sector is dominated by church-based providers. The general attitude of the public sector to the private appears to be one of distrust and skepticism, yet many public providers illegally work in both sectors. Likewise the public health sector has mostly failed to develop relations with traditional care providers, who remain the preferred choice for health care in many places.16/

1.17     **Access to Health Care.**    About 15 percent of urban and 30 percent of rural Nigerians do not have access to modern health care. Since most public and privately owned health facilities are located in urban areas, about 70 percent of health personnel serve only about 30 percent of the population. Patients are further hampered by the poor road network and weak transportation systems. Population per health facility ratios range from about 200:1 in Lagos State to 129,000:1 in Benue State. For eight states the ratio exceeds 20,000:1; in five states it exceeds 50,000:1. Health facility beds are concentrated in the southern zones, which have twice as many beds as the northern (Table 1.4). The southwestern zone, which includes the capital, Lagos, has the highest number of government beds. Between 1984 and 1987, the total number of beds increased by 11 percent; of this increase, over three-quarters were in the Southern part of the country.

1.18     **Maternal and Child Health Services.**  Maternal and child health (MCH) is a major thrust of government health policy and programs, but service is still inadequate. Even where primary health care services are available, MCH services often are not (e.g., the MCH equipment may be unavailable or broken). This poor mix means that fewer rural mothers and children receive primary health care than the total number of facilities might suggest. For example, in 1984 it was estimated that more than 70 percent of pregnant women received no prenatal care at all; some 80 percent of births occurred outside health facilities; and around only 5 percent of pregnant women received inoculations against tetanus, a major cause of neonatal mortality. With a major campaign, the rate of inoculation had risen to 16 percent by 1987. A shortage of trained midwives worsens an already bad situation. This shortage is particularly acute in the North, where cultural patterns and low female education standards produce very few local candidates for training programs.

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16/   Selective subsidization -- by providing commodities for free or at reduced prices -- may be one way to encourage those healers who pass certain established criteria, such as training courses.

Table 1.4
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## DISTRIBUTION OF BEDS IN GOVERNMENT AND NONGOVERNMENT HEALTH FACILITIES (1987)

| Zone | State | Government Beds a/ | Nongovernment Beds b/ | Total Beds | % of Nongovernment Beds |
|------|-------|--------------------|------------------------|------------|--------------------------|
| **Southeast** | | | | | |
| | Anambra | 4,375 | 4,205 | 8,580 | 49.0 |
| | Benue | 1,844 | 1,660 | 3,504 | 47.4 |
| | Cross River c/ | 2,870 | 3,492 | 6,362 | 54.9 |
| | Imo | 3,108 | 7,172 | 10,280 | 69.8 |
| | Rivers | 3,180 | 175 | 3,355 | 5.2 |
| **Subtotal** | | 15,377 | 16,704 | 32,081 | 52.1 |
| **Southwest** | | | | | |
| | Bendel | 5,450 | 2,813 | 8,263 | 34.0 |
| | Lagos | 5,038 | 1,257 | 6,295 | 20.0 |
| | Ogun | 3,694 | 1,396 | 5,090 | 27.4 |
| | Ondo | 4,888 | 2,521 | 7,409 | 34.0 |
| | Oyo | 3,911 | 2,230 | 6,141 | 36.3 |
| **Subtotal** | | 22,981 | 10,217 | 33,198 | 30.8 |
| **Northwest** | | | | | |
| | F.C.T., Abuja | 271 | 0 | 271 | |
| | Kaduna d/ | 5,676 | 766 | 6,442 | 11.9 |
| | Kwara | 3,242 | 1,501 | 4,743 | 31.6 |
| | Niger | 1,453 | 20 | 1,473 | 1.4 |
| | Sokoto | 2,595 | 0 | 2,595 | 0.0 |
| **Subtotal** | | 13,237 | 2,287 | 15,524 | 14.7 |
| **Northeast** | | | | | |
| | Bauchi | 2,388 | 55 | 2,443 | 2.3 |
| | Borno | 2,603 | 12 | 2,615 | 0.5 |
| | Gongola | 2,803 | 56 | 2,859 | 2.0 |
| | Kano | 3,568 | 333 | 3,901 | 8.5 |
| | Plateau | 3,111 | 44 | 3,155 | 1.4 |
| **Subtotal** | | 14,473 | 500 | 14,973 | 3.3 |
| **TOTAL FOR 19 STATES** (Including FCT) | | 66,068 | 29,708 | 95,776 | 31.0 |

Source: FMOH, Medical Statistics Division.

a/ Federal, State and Local Government beds.
b/ Community, Mission, Joint, Corporation and Private beds.
c/ Including Akwa-Ibom.
d/ Including Katsina.


c:table 1.4.wk1 (ja)

1.19     Immunization Services.  Nigeria's Expanded Program on Immunization
(EPI) against the six childhood diseases (measles, diphtheria, pertussis,
tetanus, polio, and tuberculosis) is an essential component of MCH care.
Immunization efforts got off to a slow start and were hampered by
administrative weaknesses and technical factors, in particular the difficulty
of maintaining reliable and uninterrupted refrigeration of vaccines to protect
their efficacy.  The number of children fully protected against the six
diseases was therefore very low.  The FMOH estimated that in 1984 only 2.5
percent of infants were adequately immunized against all six EPI diseases.
However, by 1987 this had risen to 23.3 percent, and nationwide, complete
immunization coverage of children was estimated at 24.1 percent with DPT, 23.7
percent with polio, and 36.6 percent with measles vaccines.  (Details of the
rapid expansion of the EPI program are shown in Table 1.5.)  However EPI,
although making successful progress, is a vertical program not yet integrated
into MCH services.  This integration will be necessary to sustain the program
as donor support levels are adjusted.

1.20     Family Planning Services.  The Government is aware of the economic
implications of continued high population growth and includes provision of
family planning (FP) services as a major component of its National Policy on
Population launched in April 1989 (para. 2.39).  At present, however, the
number of family planning acceptors remains low and mostly limited to urban
areas.  Only about 6 percent of married women of reproductive age use any form
of contraception, modern or traditional, including abstinence. 17/  Low
contraceptive rates may be explained by the low educational status of women,
high infant mortality, inadequate MCH/FP services, and cultural and religious
attitudes.  Again, avoiding dual delivery, training and equipment by
integrating family planning into MCH is essential to sustain the program.

Table 1.5

VACCINATION ACTIVITY RETURNS FOR EPI TARGET DISEASES AMONG CHILDREN UNDER TWO
AND TETANUS IN PREGNANCY

(Percentage of Target Populations Fully Immunized against Specific Disease) a/

|  | Tuberculosis | DPT | Polio-myelitis | Measles | All EPI Target Diseases | Tetanus In Pregnancy |
|---|---|---|---|---|---|---|
| 1984 | 11.6 | 5.2 | 2.6 | 16.9 | 2.4 | 5.4 |
| 1985 | 18.3 | 9.7 | 9.1 | 13.1 | 8.8 | 7.0 |
| 1986 | 35.6 | 17.7 | 18.4 | 26.7 | 17.7 | 11.8 |
| 1987 | 44.5 | 24.1 | 23.7 | 36.6 | 23.3 | 16.2 |

Source:  FMOH.

a/     Target populations:
       -     maternal target population = 5% of total population;
       -     immunizations = 8% of total population.

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17/  Preliminary data from Nigeria:  Demographic and Health Survey, 1990.

## Conclusion

1.21    Nigeria has a commendably comprehensive National Health Policy
which recognizes that "Primary Health Care is the key to attaining the goal of
health for all the people." However, Nigeria's public health care services
have serious shortcomings.  Ironically, demand is decreasing while the number
of potential users is rising.  Staff do not adequately serve rural areas;
facilities suffer from poor maintenance; and most public sector health care
providers have few drugs for their patients.  The report examines these
problems in the context of public sector spending while noting that private
health expenditure is also significant:  individuals spend money on
pharmaceuticals and on traditional healers, and in addition, the private
sector is active at primary, secondary and tertiary levels.  After reviewing
the context in which the national policies on health and on population are
being implemented, the comparative efficiency of public and private facilities
is examined in depth, using data from Ogun State.  Against this background,
the household demand for health care in Ogun State, from both private and
public sources, is analyzed.  Opportunities for policy adjustment, including
cost recovery, are then developed.  The report concludes that although the
basic components may be in place for an effective health care program, in Ogun
State specifically and in Nigeria in general, adjusting these components could
provide a more balanced and responsive program.  To achieve its goal of
"Health for All by the Year 2000" the Government will need to recognize the
complementary role of the private sector and insure that the limited public
sector health resources are used as efficiently as possible.

NIGERIA: HEALTH CARE COST, FINANCING AND UTILIZATION

## II. INSTITUTIONAL FRAMEWORK AND POLICY DEVELOPMENT IN THE NIGERIAN PUBLIC HEALTH SECTOR

### Introduction

2.01      Following the peak in the early 1980s federal, state and local government spending declined sharply in real terms. As spending slowed, capital investment fell faster than recurrent spending, reflecting the stability of personnel costs. Health has received a variable share ranging between 2.7 and 1.0 percent of the actual federal budget during 1981-90; by 1990 that share was worth only 40 percent of the 1981 figure in real terms. (Details are in Chapter III, Tables 3.2 and 3.3.) The Government has made a commitment to providing "Health for All by the Year 2000." The strong primary health care focus of health policies is aimed at meeting this commitment, but the scale of demand exceeds what the public sector can realistically provide. This chapter examines the institutional context of the government commitment, the operation and organization of the public sector, and introduces the complementary role of the private sector in meeting the health needs of the population.

### A.   Background on National Health Policy

2.02      After Nigeria gained independence in 1960, Nigerian government health policy emphasized maintaining the health system inherited from the British and developing the capacity for national planning. Since then, health personnel development and training, delivery of preventive health services, and health system expansion, particularly in rural areas, have had priority.

2.03      The First National Development Plan (1962-68) introduced innovative pilot programs to deliver maternal and child health and health education services utilizing paramedical personnel. These programs were successful and well received by the population, but their replication was delayed by the outbreak of civil war in 1967. The Second Plan (1970-74) covered the immediate postwar period and emphasized reconstructing health infrastructure in the war zones. During the Third Plan (1975-79), the Basic Health Services Scheme (BHSS) was formulated to deliver a full range of health services to the majority of the population. By 1975, Nigeria's expanding health manpower base was helping to pressure the Government to improve the quality of care, particularly hospital care. The result was a widening gap between rhetoric and reality: while national policy objectives continued to focus efforts and resources on basic and preventive health services, actual expenditure patterns increasingly favored capital-intensive programs oriented to curative care.

2.04      The Fourth Development Plan (1981-85) cited the following weaknesses in the health delivery system:

(a)   Health systems were biased toward curative, hospital-based programs;

(b) Urban areas dominated investment in hospital facilities and equipment;

(c) An estimated 35 percent of the population had no access to any form of modern health care services;

(d) The health sector was unable to attract and retain capable health personnel; and

(e) Communicable diseases continued to be the major cause of morbidity and mortality in the country.

Identified constraints included (i) manpower shortages; (ii) maldistribution of, inadequate coverage of, and limited access to health services; (iii) inefficient utilization patterns and poor management of health facilities; and (iv) a continuing imbalance in federal and state health allocations between curative and preventive health services. The Fourth Plan aimed to decentralize planning responsibility and to expand basic services through the BHSS. One of its major failings was that the planning of the Scheme was done primarily by the Federal Government, but as its troubled implementation got under way, the facilities were then turned over to the states.18/

2.05      The goal of the National Health Policy (October 1988) is to enable all Nigerians to achieve a level of health that will enable them to lead socially and economically productive lives. Primary health care is the basis of the comprehensive national health system and encompasses health education, nutrition, sanitation, safe water supply, and family planning. The states are expected to extend essential primary health care to the local population, utilizing community and private sector involvement. While the Fourth Plan emphasized extension of coverage through the BHSS, which involved building and equipping new facilities, the draft Fifth Plan (1988-92) focuses on rehabilitation and increased utilization of existing facilities.

2.06      The National Health Policy recognizes the integrated nature of health services in Nigeria:

> Federal, State and Local Government shall support in r coordinated manner a three-tier system of health care. Essential features of the system shall be its comprehensive nature, multisectoral inputs, community involvement and collaboration with non-governmental providers of health care.19/

The implementation of such a coordinated system will take much concerted effort and good will. The initial step is to recognize the need for it, and this has been firmly taken.

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18/    Subsequently the BHSS was implemented on a limited basis and evolved almost as a vertical program, isolated from the regular state health operations. Some buildings, never commissioned or fully operational, are now being turned over to the LGAs to operate.

19/    The National Health Policy and Strategy to Achieve Health for All Nigerians, FMOH, October 1988, p. 11.

B.    Organization of Public Sector Health Care

2.07      Federal, state and local governments share responsibility for
public health (see Annex A).  With overall responsibility for the health
sector, the Federal Ministry of Health (FMOH) sets national health policies
and program guidelines; it monitors state and local government health programs
for compliance.  In addition, the FMOH (a) trains medical doctors; (b) sets
uniform standards for all health workers; (c) operates institutions and
provides services of a national character, such as teaching, psychiatric, and
orthopedic hospitals; (d) controls communicable diseases; and (e) supplies
drugs and vaccines.  The FMOH has recently been reorganized in line with the
new civil service reforms.  The new structure for each ministry has up to
eight departments, three of which are mandatory (planning, personnel and
finance).  This reform by the Government focuses on improved planning,
rational management and the cost-effectiveness of each ministry, and provides
a timely opportunity to lay the foundation for a more efficient health care
system.20/

2.08      The National Council on Health, Nigeria's highest advisory body on
health matters, advises the Federal Government on health priorities in
implementation of the National Health Policy and the organization of health
services.  Composed of the Minister of Health and the State Health
Commissioners, the Council gets advice from a Technical Committee that
includes the federal and state Directors General and their key professional
heads.

2.09      Each of Nigeria's 21 states has a State Ministry of Health (SMOH)
that (a) plans health system development; (b) oversees the operation and
maintenance of secondary and nonspecialized tertiary health facilities; (c)
implements public health programs; (d) trains nursing, midwifery and auxiliary
health personnel; and (e) assists LGAs to manage their network of primary
health facilities.

2.10      Until recently, each state also had a State Health Management Board
(SHMB) (or State Health Council) which administered its health care
facilities, including general hospitals, rural health centers, and urban
clinics.  Its main function was personnel administration and logistical
support management (for drugs, supplies, small equipment, maintenance, etc.).
However, some states have dissolved such Boards or Councils and the SMOH is
directly involved in administering hospital-based care.21/  Within each of
the 454 local government areas, the Local Government Authority (LGA) is now
responsible for operating the primary health system, including community
health activities such as immunization and health education; hygiene and
sanitation services; and provision of basic outpatient services at its
maternities, clinics and dispensaries (See para. 3.08).  LGAs are assisted by

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20/   The chart in Annex A shows the organizational structure of the FMOH
      and identifies the various departments.

21/   This has highlighted the fact that skills in management are now
      needed more than ever, leading the FMOH to intensify its efforts to
      strengthen health planning, management and financial capability at
      all levels of health care delivery.  (Some assistance is being
      provided by the Bank through the Sokoto project (2503-UNI).)

the State Ministry of Health because, in practice, many LGAs lack the institutional and financial capacity to complete their mandate. However, the increasing autonomy of LGAs, with financial independence under the new revenue allocation formula, will likely make states less inclined to provide support such as personnel, training and supervision. This has serious implications for the health care referral network, which depends on a supportive linkage between the primary and secondary services provided by LGAs and states respectively.

## C. The Budget Process

2.11    The nature of the federal system of government is such that unless the three tiers of government (federal, state and local) cooperate they will be unable to discharge their respective political and social responsibilities. Because higher levels of government have wider and stronger tax bases and revenue-generating financial resources than lower levels, there is usually a transfer of resources from higher to lower. Equalization transfers are arranged by the Federal or State Government on the basis of need, so that each state and/or LGA attains a minimum given level of services and does not impose an unbearable tax burden in the poorer sections in its efforts to raise the necessary revenue from internal sources. Both balancing and equalization transfers are generally regarded as unconditional intergovernmental grants-in-aid, whose function is ideally suited to offsetting or balancing any general fiscal deficiencies. Stimulation or balancing transfers are usually made with specific directions as to their disbursement. One example is the federal assistance to states and LGAs to enable them to undertake the Expanded Program on Immunization (EPI).

2.12    The preparation of the state budget is triggered by the Federal Government, which periodically gives guidelines to states on the fiscal and monetary policy for the country which may cover interest rates, external borrowing, grants-in-aid and debenture stocks. These guidelines from the Federal Government form the basis for formulation of the Call Circular, issued by the State Governor, which initiates the budget process. This Circular is sent to the Commissioners, Directors General, Chief Executives and Heads of Departments of Parastatals, and requests information on the amount spent in the current year, money balances, deviations from approved expenditures, and estimates of financial needs in the coming years (see Chart 2.1).

2.13    When the budget proposal triggered by the Call Circular has passed through the operating units, it is vetted by the State Executive Council. Following processing by the state hierarchy, the state budget is then forwarded to the Armed Forces Ruling Council for final approval.

2.14    The main forces which propel the machinery of transfer of revenue resources are the doctrine of fiscal responsibility and the maximization of state and national welfare. Both are essential for balanced and equitable national health policies.

Chart 2.1: LAGOS STATE

Structure of the Budgeting Apparatus

```
            ┌─────────────────────────────┐
            │    STATE EXECUTIVE COUNCIL    │
            └─────────────────────────────┘
                          │
          ┌───────────────────────────────────┐
          │   OFFICE OF THE STATE GOVERNOR     │
          │   Secretary to the State Governor  │
          └───────────────────────────────────┘
                          │
        ┌────────────────────────────────────────┐
        │  PLANS, PROGRAMS, AND BUDGET DEPARTMENT  │
        │      Office of the State Governor        │
        │            Director General              │
        └────────────────────────────────────────┘
                          │
           ┌─────────────────────────────────┐
           │    MINISTRIES AND PARASTATALS     │
           │         Director General          │
           │         Chief Executives          │
           └─────────────────────────────────┘
                          │
          ┌──────────────────────────────────────┐
          │      DEPARTMENTS AND DIVISIONS         │
          │  Directors and Heads of Divisions      │
          └──────────────────────────────────────┘
                          │
        ┌──────────────────────────────────────────┐
        │       OPERATING UNITS/COST CENTERS         │
        │  General hospitals, primary health centers │
        └──────────────────────────────────────────┘
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## D.   Health Service Facilities

2.15      Nigeria's health care delivery system is an extensive network of
public and private facilities.  In 1987, primary care was available from about
4,080 health clinics and dispensaries.  Secondary care facilities included 740
health centers and 3,090 maternity centers and homes with 26,650 beds.
Tertiary facilities consisted of 14 university teaching hospitals with about
7,100 beds, 16 military hospitals with about 3,000 beds, 27 specialized
hospitals with about 4,600 beds, and 760 general hospitals with about 50,100
beds.  The remaining 4,300 beds were in specialist facilities.22/  Many
government health establishments, particularly for primary care, are
underequipped, inadequately staffed, and in poor physical condition.

2.16      The government health sector accounts for about 80 percent of
health facilities and about 70 percent of bed capacity.  The balance is in the
private sector, whose facilities are located disproportionately in the
southern states.23/  For example, the private sector accounts for more than
half the beds in the southeastern states of Imo and Cross River, but

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22/   This is about 1:1222 people per hospital bed.

23/   In 1987 there were an estimated 1,700 private and church-related
      health care facilities with over 29,700 beds, mostly concentrated in
      the southern states.  (See Table 1.4.)

contributes less than 5 percent of the beds in the northern states of Niger, Sokoto, Bauchi, Borno, Gongola, and Plateau states (see Table 1.4). One reason for the greater quantity and proportion of nongovernment beds in the southern zones is the comparatively large number of mission hospitals, the Christian religion being widespread in the South, while the North is predominantly Muslim.

2.17     Health Manpower.  Nigeria has made considerable progress in training and deploying health manpower.  During the period 1975-87, the number of doctors in Nigeria quadrupled from 4,248 to 16,145, of whom around one fifth were foreign (see Table 2.1 below).  Over the same period, the number of nurses also increased sharply, tripling from 17,904 to 56,120, and the number of midwives increased from 13,101 to 45,852.  The number of pharmacists tripled to 4,446.  The most dramatic gains were seen in dentists and all categories of technicians, whose numbers increased sixfold and ninefold to 1,000 and 8,186, respectively.24/  The number of "community health workers," a group of several types of personnel introduced in 1979 as key manpower in Nigeria's strategy to provide primary health care services, rose from 1,000 in 1979 to 21,742 in 1987.  In comparison with the gains in health manpower, hospital beds almost doubled between 1975 to 1987.  The outlook is, however, unstable.  With the economic decline of the 1980s and with devaluation which has reduced the value of remittances home, expatriates have been leaving Nigeria.  This has especially affected the North, which, in addition, has difficulty recruiting personnel from the South.  To complicate the situation, many Nigerian health personnel have gone overseas to more attractive employment.  Finally, the private sector has absorbed trained personnel.25/

2.18     In 1986, Nigeria had 14 teaching hospitals graduating about 800 doctors; 54 general schools of nursing graduating about 5,200 nurses; 46 specialized schools of nursing; and 63 schools of midwifery.  In addition, "schools of health technology" (one in each state) trained auxiliary personnel for the primary health care program.  In 1984, these schools graduated 147 community health officers, 232 community health supervisors, 1,679 community health assistants, and 1,801 community health aides.  Nearly twice as many doctors and nurses graduated as did all categories of PHC workers -- evidence that only limited efforts were being made to link national priorities in preventive and primary health care with the production of health manpower. With adequate funding, Nigeria's health manpower training capacity, already well developed, is capable of producing sufficient health manpower over the near term.  Three major issues remain unresolved:  the poor quality of health

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24/     Here technicians include Public Health Superintendents, Public Health Inspectors, Medical Laboratory Technologists, Medical Records Officers, Radiographers, Audiologists/Speech Pathologists, Dieticians, Physiotherapists, Dental Technologists, and Dental Therapists.  "Dentists" are also listed in a separate column of the FMOH table and may or may not overlap with the dental categories included here.

25/     In Imo State the number of private maternity homes grew from 336 in 1984 to 378 in 1986, and private clinics/hospitals from 188 to 259 over the same period.

training, the biased distribution of health personnel toward urban areas, and the skill mix.

## Table 2.1

### HEALTH MANPOWER 1960-1987

|  | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1987 |
|---|---|---|---|---|---|---|---|
| Total doctors | 1,970 | 1,981 | 2,683 | 4,248 | 8,037 | 14,757 | 16,145 |
| of which Nigerians | 349 | 726 | 1,701 | 3,039 | 6,192 | 11,908 | 13,332 |
| Total dentists | n.a. | n.a. | n.a. | 168 | 285 | 899 | 999 |
| of which Nigerians | n.a. | n.a. | n.a. | 109 | 203 | 694 | 787 |
| Registered nurses | n.a. | n.a. | n.a. | 17,904 | 27,241 | 45,976 | 56,120 |
| Registered midwives | n.a. | n.a. | n.a. | 13,101 | 21,411 | 39,137 | 45,852 |
| Hospital beds | n.a. | n.a. | n.a. | 54,174 | 75,722 | 87,835 | 95,776 |

Source: FMOH, Department of National Health Planning, Research and Statistics.

2.19    Establishment of the Primary Health Care Coordinating Unit (PHCCU). The focus on PHC has been evolving slowly. In 1978, a Special Commission was created to review the BHSS's performance in providing PHC. The Commission concluded that while its objectives and policy framework were appropriate, BHSS's limited attempts at implementation had been a costly failure. The Commission recommended (a) greater involvement of state and local governments and communities in developing health programs; (b) full integration of existing facilities and health manpower into the desired health system; (c) development of less costly, more appropriate facility designs and equipment lists; and (d) adoption of explicit evaluation criteria.

2.20    After these recommendations were accepted in late 1981, the PHCCU was assigned the tasks of (a) training auxiliaries and professionals working in PHC; (b) supplying medical equipment and water and sanitation facilities to federally supported PHC centers; and (c) managing special programs, such as a women's health and development project, model MCH/FP programs, an overhaul of

PHC statistics and information gathering systems, and national workshops on essential drugs and their financing. Current plans include strengthening the Health Education Unit to better assist the states in family planning and developing the fledgling Nigerian AIDS Control and Prevention Program. In the reorganization of 1988, the PHCCU was upgraded to become the Department of Primary Health Care.

E.    Recent Developments in Health Planning

2.21      During the past several years, the technical shortcomings of the states in planning and evaluation and the need for consistency in implementing health programs has spurred the FMOH to support state and LGA planning efforts. Since 1982, the Department of National Health Planning, Research and Statistics (DHPRS) has taken the lead in developing health planning capacity at all levels of government nationwide. Related activities have been financed with assistance from the World Bank through the Sokoto Health Project (2503-UNI).

2.22      One goal of the DHPRS has been to translate health policies into operational programs. Assisted by international consultants, the Department prepared a manual and guidelines on health planning and a model health plan for Ogun State in 1987 (its Table of Contents is presented here as Annex B) and held national workshops to educate state and LGA officials on health planning. These materials explained how systematically to obtain, analyze, and put to use relevant information to help overcome identified constraints. Participating state officials were then each asked to submit a five-year state health plan to help prepare the national health plan.

2.23      The workshops have been well attended by senior LGA and state officials. Their unique combination of theory and practice has generated enthusiasm for systematic planning and has sparked deeper interest in health finance because identifying financial constraints and evaluating costs and cost-effective use of resources are planning components. The preparation of these plans has encouraged community participation and recognition of the need for cost sharing. This heightened interest in health finance could have a wide impact because health budgets often do not consider the actual or comparative costs of existing health programs. The outcome has been a series of high-quality comprehensive state health plans which were transformed into more manageable three-year rolling plans and became the basis for the draft Three Year Development Plan for Health 1989-91. The Plan's centerpiece is a long-term primary health care investment strategy which emphasizes innovative investment in maintenance and limited expenditure on new construction.

F.    The Nigeria Essential Drugs Program

2.24      Building on the National Health Policy's commitment to ensure that "essential drugs ... are available at all levels of the health care system," in June 1988 the FMOH and all the states endorsed a national policy on essential drugs as a basis for development of the proposed National Essential Drugs Program. This policy defines essential drugs (EDs) as safe, effective, but inexpensive drugs which satisfy the health care needs of the majority of

the population and hence are available at all times throughout the health care system.26/

2.25     Many sub-Saharan African countries have demonstrated that effective national essential drug programs (EDPs) can save money.27/  The potential economic benefits of the Nigerian EDP are high.  Drugs are typically the second largest expenditure item (after personnel) in Nigeria's ever-shrinking health budgets (see Chapter III).  It has been estimated that Nigeria could save 75 percent of current drug expenditures by using more cost-effective practices.  Thus, current expenditure levels for drugs could serve four times as many illnesses.

2.26     A shortage of appropriate drugs continues to plague public sector health facilities in Nigeria.  The drug shortage undermines the effectiveness of recommended treatments and reduces public confidence.  One predictable result is low utilization rates at public facilities and possibly low employee morale.  Small budgets and inadequate foreign exchange contribute to the shortage of imported and domestically produced drugs.

2.27     Prevailing drug selection, procurement, distribution, and utilization practices have also undermined access to priority drugs.  World Health Organization (WHO) technical reviews28/ revealed that

(a)    ineffectual and even dangerous drugs are frequently procured;29/

(b)    as a rule, branded rather than less expensive generic drugs are procured;

(c)    cost-effective procurement procedures are often not used. Drugs are often purchased locally in small quantities instead of in bulk through open international tender. As a result, some local governments pay up to six times international prices;

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26/   The term "essential drugs" has come to be used for that sub-set of drugs that will effectively treat, at a reasonable cost, the large majority of ailments (say 95%) experienced in a given geographic area. WHO has prepared a model list of about 250 essential drugs, selected from the many thousands marketed worldwide, which can be adapted for individual countries.

27/   Thanos Catsambas and Susan Foster, "Spending Money Sensibly: The Case of Essential Drugs," Finance and Development, vol. 23, no. 4, (December 1986), pp. 29-32.

28/   "Nigeria: Sokoto State Health Project (LN 2503-UNI), Essential Drugs Programme and Drugs Revolving Fund -- Report of a WHO Mission, 14 April-2 May 1986," (Geneva: WHO, June 1986); and "Nigeria: Imo State Health and Population Project, Essential Drugs Program and Drug Revolving Fund -- Report of a WHO Mission, September 8-21 1986," (Geneva: WHO, 30 September 1986).

29/   For instance, 25% of Sokoto's 1986 drug expenditures were for several branded products no longer used in many countries.

(d) many drugs are damaged after purchase by faulty storage practices or disappear due to inadequate stock control procedures; and

(e) because of inadequate diagnostic capabilities, health staff prescribe an excessive number of drugs in an attempt to treat a number of possible diseases simultaneously.

2.28     The FMOH believes that charging for drugs is an appropriate way of recovering some of the costs of health services.  Sharing this view, the Bank's recent policy study on health financing cites three reasons why drug charges are particularly suitable for cost recovery: (a) consumers already widely accept the idea of paying for drugs; (b) charging for drugs can give the public sector a useful management incentive for improving efficiency; and (c) accountability of managers and distributors can be readily built into a revolving fund system for drug purchases.30/  Ensuring drug quality must be part of any cost recovery program,31/ or else the fees may drive away more clients and reduce usage of government health services further.

2.29     Aside from recovering costs, charging fees for drugs offers a method of manipulating consumer demand.  Price differences can be used to shift preferences to less expensive substitutes.  Patients who pay for their own drugs will probably be more careful about using them properly. Information on drug sales indicates demand and can help guide procurement.

2.30     As part of an EDP, a Drug Revolving Fund (DRF) can recycle the proceeds from charges on drugs to sustain their availability.32/  A DRF helps drug purchases to pay for themselves by using the revenue from drug charges to replenish supplies or to maintain a constant cash asset base. Depending on how subsidies are used in the fee structure, additional funds from annual health budgets may still be required to maintain a DRF's asset base fully.

2.31     With WHO and World Bank support, the FMOH is implementing a Nigerian Essential Drugs Program (NEDP) to help states (i) select, procure, store and distribute good quality essential drugs in sufficient quantities at the lowest possible cost; (ii) improve the diagnostic, prescribing, dispensing, and cost sensitivity skills of health care workers; and (iii) make the supply of drugs self-financing through cost recovery and drug revolving

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30/     John Akin et al., "Financing Health Services in Developing Countries: An Agenda for Reform: A World Bank Policy Study" (Washington, D.C.: World Bank, April 1987).

31/     Drug quality is an issue of increasing public and professional concern because the reliability and quality of drugs available in the markets have declined. Reportedly, drugs have been diluted and/or mixed with other, sometimes harmful, substances, most likely because of higher foreign exchange costs resulting from devaluation of the naira. Ensuring the quality of drugs at government health facilities through an effective EDP could give public facilities a competitive edge, particularly over the purchase of drugs at chemist shops for self-medication.

32/     With the naira floating freely, prices should reflect the real cost.

funds. The project will help improve FMOH's technical capacity and establish small essential drug programs at key federal health care institutions.33/ A number of Nigerian states have already begun charging for drugs, and several have requested help in managing effective revolving funds. Better implementation of these measures, coupled with more rational selection, procurement, distribution, and prescription of drugs, could make drugs cheaper and more available and aid Nigeria's efforts to provide effective PHC.

2.32      Domestic Production of Pharmaceuticals.  The local, mostly private, pharmaceutical industry imports or manufactures about 3,000 different final products and ingredients worth ₦300 million retail in 1985 (₦150 million wholesale).34/  Operating at about one quarter of capacity, domestic manufacturers are extremely inefficient. They make tablets, capsules, powders, and liquids (but no injectables).  There being no pharmaceutical fine chemical industry, all therapeutic ingredients are imported.  A few components such as starch, glucose, glycerol, oxygen, etc., are manufactured locally, but their economic importance in production is low.  Drug production, therefore, consists basically of preparation and packaging of imported raw materials. There are no important technical constraints to the expansion of local capacity to meet the government's requirements for essential drugs.  The assured local demand under the proposed National Essential Drugs Program, with set, published lists of drug requirements, would also provide a more dependable market for local producers than in the past.  However, in view of the limited local value added and the present inefficiencies associated with local industries, preliminary analyses indicate that with regard to only a very few drugs can Nigeria be competitive with foreign producers.  However, with fiscal incentives (e.g., tax holidays) this might change with regard to some drugs.  In any case, the private sector with its presently badly underutilized capacity clearly has a comparative advantage over the Government in the manufacturing of drugs, including essential drugs.

2.33      Vaccine production is a separate issue.  Vaccine manufacturing is a risky activity for which consistently high quality standards have to be established and scrupulously maintained.35/  One faulty batch, resulting in one publicized fatality, can wipe out the public confidence in the immunization program which has been built up so painstakingly.  Nigeria has a large population which may make production cost-effective, but high-quality vaccines can readily be purchased at very low prices from multiple international sources so that during this period of financial constraints it does not appear appropriate that Nigeria make the initial investment in what would become a major production activity.

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33/    The National Essential Drugs Project (Loan No. 3125-UNI) became effective on September 10, 1990.

34/    About 100 pharmaceutical manufacturers and importers are active in Nigeria.  The three publicly-owned manufacturers represent a very small fraction of the subsector's turnover.

35/    Some of the necessary equipment includes air conditioners, humidifiers, dust extractors, and separate manufacturing facilities for viral vaccines, bacterial vaccines, and human blood derivatives.

2.34     In reaching decisions on production of both essential drugs and vaccines, the capability of the private sector should be thoroughly reviewed before substituting public facilities for private capacity. Meanwhile, adulterated drugs are flooding the market, making it vital that expenditure on quality control facilities to test food and drugs remains a high priority.

## G.  Government Population Policies and Programs

2.35     Population growth rates in many African countries remained low until about 1950. Many early African leaders considered their populations below optimum size because of low population densities, past losses due to slave trading, and high mortality. At the time of its 1963 census, Nigeria's population was 55.7 million and growing at 2 percent annually. (For 1985-90 that figure is estimated at an annual 3.2 percent.) But even Nigeria's 1962-68 First National Development Plan recognized the interrelationship between population growth and resources:

> ...the population is increasing at a faster rate than the provision of new facilities, health services, housing, schools, transport.... Despite major investments, the situation is liable to deteriorate faster if the present increase in the rate of population growth continues.

While the Government supported family planning services to help families to choose and to space births, it took little initiative to stimulate awareness, leaving the limited activities in this area to NGOs.

2.36     Until very recently, little was done to reduce population growth. The Second National Development Plan proposed but did not implement a national family planning program. The Third Development Plan (1975-79) coincided with the oil boom, when Nigeria's large and rapidly growing population was seen as no obstacle to economic progress. The increase in oil revenues financed an ambitious expansion of infrastructure and social services which did not then seem burdensome. Nonetheless, the high rate of rural migration to the cities was seen as worsening employment and urban development problems. Recognizing the potential implications of continued high population growth, the Third Plan called for (a) maintaining support for family planning; (b) strengthening the National Population Bureau and the Planned Parenthood Federation of Nigeria; and (c) establishing a reliable registration system to develop an ongoing demographic database. Yet no commitment to a population policy explicitly aimed at reducing the growth rate was articulated at this time.

2.37     The overriding objective of population policy in the Fourth Development Plan (1981-85) was to use sample surveys to generate appropriate, accurate population data for planning purposes. To address the dearth of demographic data, the National Demographic Sample Survey of 1980 and the Nigeria Fertility Survey of 1981-82 (part of the World Fertility Survey) were conducted in cooperation with the National Population Bureau (NPB). These surveys confirmed a population growth rate of 3 to 3.5 percent per annum that would double the population in less than 25 years. When oil revenues plummeted in the early 1980s, deep cuts in recurrent budgets and postponements in the completion of ambitious capital projects became necessary. The current environment of debt and fiscal austerity has exacerbated the impact of continued high population growth on basic social services, food availability and urbanization, and has encouraged the Government to adopt a comprehensive population policy aimed at reducing the population growth rate.

2.38    In 1988, the National Population Commission (NPC) was established, with the primary task of undertaking a national census in 1991.  Its secondary role is monitoring the impact of the National Population Policy.  To undertake this work, the NPC has incorporated the skills of the former NPB.

2.39    The National Policy on Population.  In April 1989, the National Policy on Population was launched, with the ambitious target of reducing the annual population growth rate to 2 percent by the year 2000.36/  Aside from reducing the population growth rate, the policy focuses on improving maternal and child welfare through encouraging smaller families by means of (a) reducing marriages under age 18; (b) decreasing pregnancies in women below 18 and over 35; (c) increasing child spacing to at least two years; (d) reducing the average total fertility rate from more than six to four children; and (e) promoting a continued decline in death rates, particularly for infants and mothers.  Implementation of the policy will require commitment at all levels of government, with a coordinated effort across all involved ministries.  In particular, the signals from the Government should consistently support the policy.  This will be particularly difficult where the allocation of federal revenue to the states is concerned.  Currently, forty percent of this amount is based on the size of the estimated population, providing a strong disincentive to curb the growth rate.

## Conclusion

2.40    The Federal Ministry of Health has recently unveiled two major policy documents:  the National Health Policy and the National Policy on Population.  Both are commendable in their synthesis of needs and the strategies outlined to meet them.  However, implementation will require much effort, in particular an adjustment in approach.  The challenge confronting Nigeria's health system is not building buildings and training personnel, but "doing more with less" -- developing the system with limited resources. Although this is a familiar prescription for countries facing budget constraints, it is particularly appropriate for Nigeria, where low utilization rates are common.  The resources available to the public sector are the subject of the next chapter.

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36/    The policy was drafted by a committee composed of representatives of the Federal Ministry of Health, Federal Ministry of National Planning, National Population Bureau, Nigerian Institute of Social and Economic Research, University of Lagos, the Planned Parenthood Federation of Nigeria, and PAI Associates International. It was reviewed, modified and approved by the Interministerial Consultative Group on Population and Development. Technical consultation was provided by the World Bank, UNFPA, ILO and other national and international experts.  The Bank is supporting implementation of the policy with the National Population Project, expected to become
in

NIGERIA: HEALTH CARE COST, FINANCING AND UTILIZATION

## III. PUBLIC SECTOR HEALTH RESOURCES

3.01    To calculate annual total public health resources, data must be gathered from federal, state and local levels. In 1986, such an exercise was undertaken by the Federal Ministry of Health in conjunction with the World Bank on a sample basis.37/  This chapter shows how the decreases in government revenues have had a large impact on the public health sector at all levels.  The first part of this chapter describes the flow pattern between federal disbursements and the state- and LGA-run health facilities and programs that spend the money.  The chapter then reviews total government revenues and expenditures.  Finally, it examines disaggregated budgetary allocations to the health sector at different levels of government.38/

3.02    The highlights of this examination are that at all three levels of government during the first half of the 1980s (a) the shares of the budgets allocated for health were relatively stable; (b) recurrent expenditures became increasingly dominated by personnel costs; (c) expenditures generally rose in nominal value but fell sharply in real terms; and (d) as a result, the estimated total per capita expenditures were approximately halved in real terms.  In the second half of the 1980s, the share of the federal budget for health declined and, based on more limited data, the picture appears to be similar at the state level.

3.03    Although the Federal Government provides most of the funds, it is estimated that about two-thirds of all public sector health expenditure occurs below the federal level.39/  The states are heavily dependent on federal funding to meet recurrent liabilities in health services, but the federal budget depends on oil revenues.  Thus, even with major efforts to increase internal revenues, state budgets cannot avoid fiscal volatility. Such volatility is clear from the data in this chapter.

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37/    A Survey of the Financing of Primary Health Care, 1980-86, Primary Health Care Department, Federal Ministry of Health.  Prepared by Shirley and Francis Ltd., Lagos, Nigeria.

38/    In this chapter, the analysis is based on actual figures for 1981-85 rather than on the approved budget estimates, which are prepared annually by the Federal Government and by each state and LGA.  The available data are limited, but they indicate that there can be substantial differences between actual revenues and expenditures and the budget estimates.  The sources and reliability of the data at each level of government are described in Annexes C and D.  In addition, Annex E includes an estimate of total government health expenditures in 1985 derived in part from the relationship between budget estimates and actual figures for a larger number of states in that year.

39/    The estimation is based on calculations in Annex E.

## A.    The Flow of Health Sector Funds

3.04    Chart 3.1, which is divided into four quadrants, shows the flow of government health funds. Revenue sources are shown on the left of the chart. Resources flow to the right, directly to the facilities and programs or indirectly via the various governmental decision units.  The horizontal division of the chart represents the distinction between the government institutions that oversee and support health care (above the horizontal line), and the facilities and programs actually providing health services (below tne line).

3.05    Revenues. As in other sectors, public health sector funds originate in revenue generated internally by domestic taxes or in revenue from external sources.  The main source of internally generated revenue is the oil sector.  Oil taxes feed the Federation Account, of which 50 percent is allocated to the federal level, 32 percent to the state level, 15 percent to the local government level and 3 percent to the Special Funds.40/  In recent years, the Federation Account has been the most important revenue source at all levels of government.

3.06    Internal revenues derived from other taxes, licenses, fees, etc., make up a variable proportion of state and LGA funding sources.  LGAs have limited powers of taxation; state governments are required to distribute 10 percent of their internally generated revenue to the LGAs.41/  User charges at health facilities generate a small amount of internal revenue that is usually returned to the governmental unit administering the facility, although the health facility or program that provides the service may retain some amount.  Communities may make in-kind contributions, typically for constructing community facilities or for buying a specific piece of equipment or stock of drugs for them.

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40/    Until 1984, states received and often retained an undetermined portion of the 10% of the Federation Account allocation (changed to 15 percent in 1990) which should have been passed on to the local governments within their boundaries. Now LGAs receive their allocation directly from the Federal Government through a newly created LGA unit in the State Governor's office.  The balance of the Federation Account is allocated to the Special Fund for national programs such as the Amelioration of Ecological Problems and the Development of Mineral Producing Areas.

41/    In recent years, the states often have not paid out to the LGAs any of the 10% of their internal revenue which was called for by the original law (Federal Allocation Bill of 1981). However, states have sometimes used all or part of this retained revenue to pay for LGA-employed teachers.

# CHART 3.1
## Recurrent Expenditure
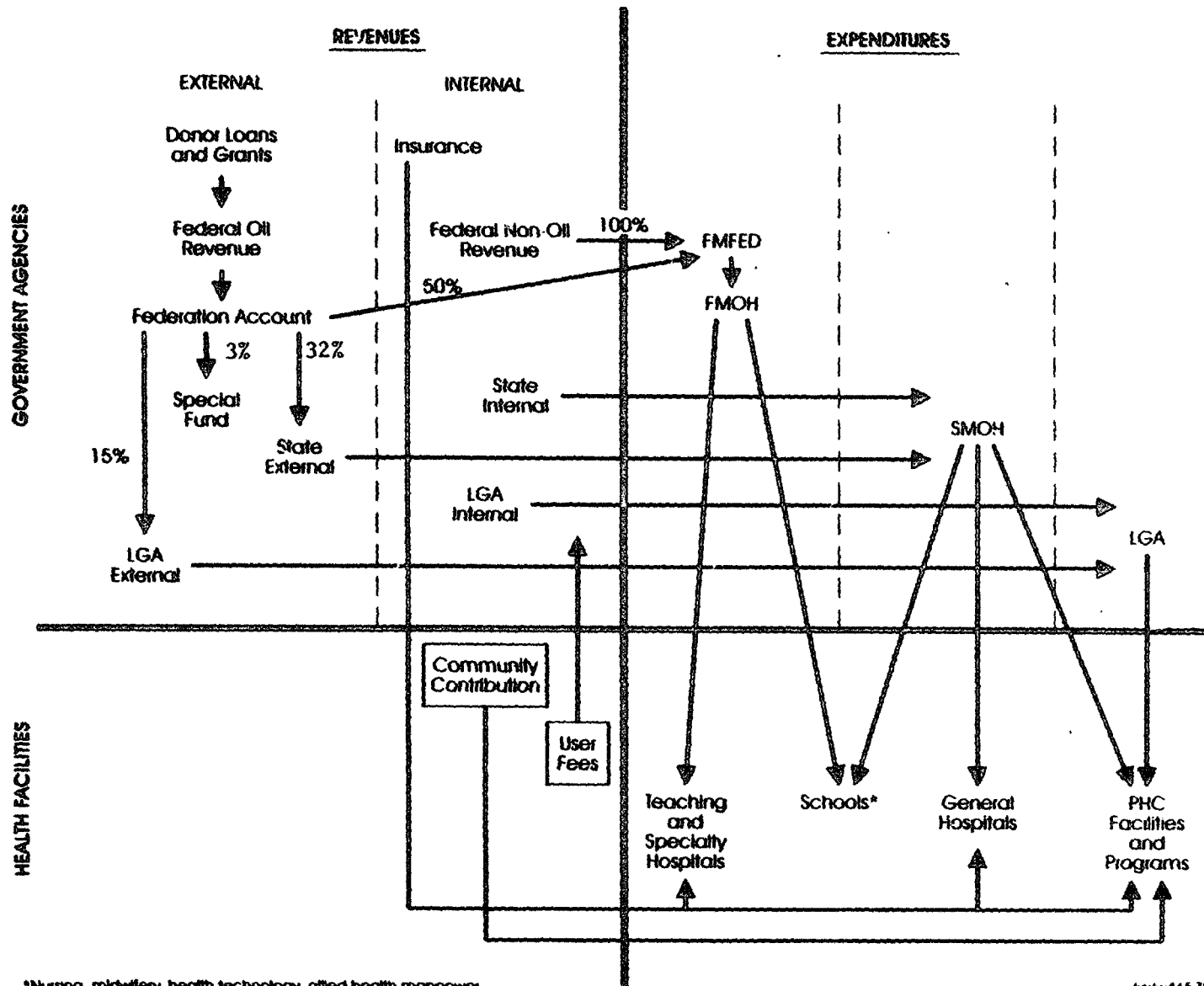


*Nursing, midwifery, health technology, allied health manpower

tsi/w4657db

REVENUES

EXPENDITURES

EXTERNAL

INTERNAL

GOVERNMENT AGENCIES

HEALTH FACILITIES

Donor Loans and Grants

Insurance

Federal Oil Revenue

Federal Non-Oil Revenue

100%

FMFED

Federation Account

50%

FMOH

3%

32%

State Internal

Special Fund

State External

15%

SMOH

LGA Internal

LGA External

LGA

Community Contribution

User Fees

Teaching and Specialty Hospitals

Schools*

General Hospitals

PHC Facilities and Programs

- 28 -

3.07    Expenditure allocations begin with partitioning resources
between the recurrent and capital budgets.  The Federal Ministry of Finance
and Economic Development (FMFED) makes this division at the federal level
based on approved, annually prepared budget estimates.  The State Ministry
of Finance42/ and the State Governor perform this function at the state
level, while Local Government Councils perform it locally.  The FMFED
allocates recurrent expenditures of the Federal Ministry of Health (FMOH)
on the basis of FMOH proposals, between FMOH personnel expenditures, FMOH
nonpersonnel expenditures, and "Grants and Subventions."  These grants and
subventions support a variety of facilities and programs, such as the 14
teaching hospitals, other federal specialized hospitals, and federal
primary health care programs, among them the Expanded Program on
Immunization.

3.08    State health resources are divided between the State Ministry of
Health (SMOH) and the State Health Management Board(SHMB).  The state has
the responsibility for all secondary level care.  Generally, the SMOH used
to handle planning and epidemiological surveillance and also supervise the
state's nursing, midwifery and health technology training schools.  The
operation of facilities (such as health centers, clinics and hospitals) was
usually left to SHMB.43/  Until 1989 this division of services left the
state providing some primary curative services through the operation of
state-owned health centers, as well as operation of secondary level care
provided by the general hospitals.  However, the LGA health budget as
provided from the federal allocation has now been increased, passing to
these bodies the statutory responsibility to deliver all primary health
care, including the selection, employment and paying of staff to operate
such facilities.  The LGA is now responsible for deciding on the allocation
to sectors, including health, and preparation of a budget, to be reviewed
and approved by the Governor's office.  These LGA health allocations will
now include salaries and operating expenses for all primary health care
facilities (including clinics, dispensaries and maternities), as well as
for certain public health activities such as immunizations, health
education, health inspections and environmental sanitation;  LGA
activities, however, remain under the supervision of the SMOH.

3.09    Allocation of Capital Expenditures.  At the federal level, the
FMOH proposes a health sector capital spending program to the FMFED each
year under the guidance of the Directorate of National Health Planning
(DNHP) and the appropriate five-year plan.  The FMFED then allocates the

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42/   In some states the functions of finance and planning are joined, as
      at the federal level, into a single ministry called the State
      Ministry of Finance and Economic Development.

43/   To allow comparability between states in the following analysis, SMOH
      and SHMB expenditures have been separated from or combined with each
      other where appropriate, regardless of whether the SHMB had
      originally appeared within the SMOF or SMOH budget.

FMOH capital budget.44/  At the state level, analogous roles are played by the State Ministries of Health and Finance.  The capital budget for health is usually small at the local level.  Federal capital expenditures cover mostly curative care (such as the teaching and specialty hospitals) but also fund vertical programs in preventive care such as communicable disease and malaria control programs.

3.10     Each of FMOH's three involved Directorates (Hospital Services, Disease Control, and Primary Health Care) gets a portion of the FMOH capital budget, which it uses to support operations.  The Directorate of Hospital Services and Training oversees the development of teaching and specialty hospitals, the same hospitals that receive most of the "Grants and Subventions" component of the FMOH recurrent budget.45/  The Directorate of Disease Control and International Health spends about a third of its capital budget for federal disease control activities at Nigeria's ports of entry.  The remaining two-thirds pay for the communicable disease and malaria control programs, which are implemented by state and local governments.

3.11     Now formally a Directorate, the PHC Department receives a segment of the FMOH capital budget, which it then allocates among nine expenditure categories.  Some resources go directly to the SMOHs for PHC activities and for training LGA community health workers.  Other funds buy equipment for the Basic Health Units and Nigeria's Expanded Program on Immunization.

3.12     At the state level, the capital health budget finances construction, improvements and maintenance of the state health manpower training schools and the health care facilities managed by the SHMB.  The SMOH usually retains authority for the portion of the capital budget allocated to SHMB-managed facilities.  Although SHMB capital budgets in some states are small, these do not generally fund construction.  LGA capital budgets help operate local health facilities and pay for public sanitation, such as latrine construction and market cleanup.

B.   Total Public Expenditure

3.13     Total government health expenditure in 1985 was approximately N800 million or between N8 and N9 per capita.  At 1985 exchange rates, this was about US$8 which was near the middle of the range of per capita expenditures for middle income countries.  However, unlike all other Sub-Saharan African countries, it is estimated that Nigeria spent less than a

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44/  Within the FMOH, the Directorates of National Health Planning, of Pharmaceutical Services, and of Food  Drug and Laboratory Services each indirectly implements programs in support of health activities and is funded by a portion of the health capital budget.

45/  The Directorate also has responsibility for the "Allied Health Manpower Development" portion of the capital budget, which supports the federal schools of allied health manpower, but not the State Schools of Health Technology, which also train health auxiliaries.

third of this total centrally at the FMOH. Over half of expenditures
occurred at the state level and about 15 percent to 23 percent at the local
level. (See Annex E.) With expenditures so decentralized, all three
levels of government must be considered in reviewing both the level and the
volatility of Nigerian government health expenditure.

3.14      Reflecting national constraints, spending declined at each level
of government during 1981-85, generally by more than the decline in
revenues (Table 3.1). Federal spending fell 56 percent, exceeding the real
revenue decline of 39 percent. State spending similarly declined 51
percent, compared with an average revenue decline of 31 percent. Limited
data are available for LGAs, but it appears that they experienced similar
declines.

## Table 3.1

### TOTAL EXPENDITURES BY FEDERAL GOVERNMENT AND SELECTED
### STATES IN NIGERIA, 1981-85
### (Actuals, in Millions of 1981 Naira)

|  | 1981 | 1982 | 1983 | 1984 | 1985 | Change (%) |
|---|---|---|---|---|---|---|
| Federal | 12,800 | 12,000 | 10,200 | 5,600 | 5,600 | -56 |
| States |  |  |  |  |  |  |
| Imo | 409 | 328 | 258 | 210 | n.a. | -47 |
| Lagos | 477 | 465 | 396 | 230 | 264 | -45 |
| Ogun | 221 | 149 | 131 | 72 | n.a. | -67 |
| Ondo | 258 | 232 | 186 | 117 | n.a. | -54 |
| Oyo | 323 | 315 | 269 | 209 | 252 | -22 |
| Kwara | n.a. | 135 | 131 | 102 | 76 | -43 |
| Sokoto | 323 | 284 | 230 | 120 | 115 | -64 |
| Gongola | 330 | 227 | 145 | 92 | 124 | -62 |
| CPI | 100 | 108 | 133 | 185 | 195 |  |

Source:   Annex F, Tables 1, 4 and 5

3.15      Investment in Health Care.  While the nominal recurrent
allocations by the FMOH have shown a fairly steady increase, nominal
capital allocations have been much less regular.   The contrast between the
behavior of these two aggregates is most apparent in the early 1980s, when
oil revenue encouraged FMOH to implement a major hospital construction
program (see Table 3.2).   In real terms the total FMOH allocation in 1990
was worth about 40 percent of its value in 1981.

Table 3.2
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FEDERAL ALLOCATIONS TO FMOH
(Millions of Naira)

| Year | Approved | | | Actual | | | |
|------|----------|--------|--------|-----------|---------|---------|----------------------|
| | Recurrent | Capital | Total | Recurrent | Capital | Total | Total in 1981 Naira |
| 1980 | 119.8 | 110.4 | 230.2 | 112.6 | 77.8 | 190.4 a/ | 280.0 a/ |
| 1981 | 155.8 | 183.4 | 339.2 | 153.4 | 142.1 | 295.5 | 295.5 |
| 1982 | 143.6 | 186.0 | 329.5 | 153.2 | 120.5 | 273.7 | 254.1 |
| 1983 | 143.6 | 170.0 | 313.6 | 153.3 | 116.6 | 269.9 | 203.4 |
| 1984 | 139.1 | 51.3 | 190.3 | 168.1 | 42.8 | 210.9 | 113.8 |
| 1985 | 167.7 | 49.4 | 217.1 | 177.2 | 45.4 | 222.6 | 113.9 |
| 1986 | 239.2 | 81.2 | 320.4 | 245.8 | 131.5 | 377.3 | 183.2 |
| 1987 | 166.9 | 69.5 | 236.4 | 229.0 | 125.6 | 354.6 | 156.3 |
| 1988 | 259.9 | 183.2 | 443.1 | 319.6 | 117.3 | 436.9 | 139.3 |
| 1989 | 359.7 | 126.0 | 485.7 | NA | NA | NA | NA |
| 1990 | 401.1 | 257.0 | 658.1 | 401.2 | 181.6 | 582.8 b/ | 119.8 b/ |

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a/ April - December.
b/ Provisional.

Source: Federal Government of Nigeria, Approved Budgets; Federal Ministry of Health;
and Staff Estimates.


3.16    As a share of the actual total federal budget, health care shows
a distinct downward trend, from around 2.0 percent in the early eighties,
to 1.0 percent in 1990 (see Table 3.3).

Table 3.3
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FMOH AS SHARE OF THE FEDERAL BUDGET ALLOCATIONS
(Percentage)

| | Approved Share of Total Federal Budget | Share of Federal Recurrent Budget | Share of Federal Capital Budget | Actual Share of Total Federal Budget |
|------|------|------|------|------|
| 1980 | 2.2 | 3.4 | 1.6 | 1.6 |
| 1981 | 3.5 | 4.4 | 2.9 | 2.3 |
| 1982 | 3.0 | 4.2 | 2.4 | 2.1 |
| 1983 | 2.5 | 2.6 | 2.4 | 2.0 |
| 1984 | 1.9 | 2.3 | 1.3 | 2.0 |
| 1985 | 1.9 | 3.1 | 0.9 | 2.0 |
| 1986 | 2.8 | 4.2 | 1.4 | 2.7 |
| 1987 | 1.3 | 1.5 | 1.0 | 1.3 |
| 1988 | 1.8 | 1.9 | 1.7 | 1.3 |
| 1989 | 1.6 | 1.7 | 1.4 | n.a. |
| 1990 | 1.7 | 1.5 | 2.0 | 1.0 |

Source: Federal Government of Nigeria, Approved Budgets; Federal Ministry
of Health; and Staff Estimates.

## C.   Recurrent Expenditure

3.17    The share of recurrent expenditure allocated to health increases
at the peripheral levels of government.  Table 3.4 shows that during 1981-
85 health captured from 2 to 4 percent of the federal recurrent budget and
around 10 to 11 percent in the five states for which actuals are currently
available.  Limited data suggest that health consumes approximately 31 to
40 percent of LGA recurrent expenditure.

### Table 3.4

**PERCENT OF TOTAL RECURRENT EXPENDITURE ALLOCATED TO HEALTH BY THE
FEDERAL GOVERNMENT AND SELECTED STATES IN NIGERIA, 1981-85
(Actuals)**

|         | 1981 | 1982 | 1983 | 1984 | 1985 | Average |
|---------|------|------|------|------|------|---------|
| Federal | 3.1  | 2.7  | 4.1  | 3.7  | 3.3  | 3.4     |
| **States** |   |      |      |      |      |         |
| Imo     | 9.0  | 10.7 | 9.2  | 9.4  | n.a. | 9.6     |
| Ogun    | 11.0 | 12.3 | 12.4 | 14.6 | n.a. | 12.6    |
| Ondo    | 11.9 | 11.1 | 12.5 | 12.3 | n.a. | 11.9    |
| Oyo     | 10.5 | 9.1  | 9.1  | 8.2  | 8.2  | 9.0     |
| Sokoto  | 9.1  | 9.7  | n.a. | n.a. | n.a. | 9.4     |

Source:  Annex F, Tables 4, 5 and 7.

3.18    The larger percentage spent on health at the local and state
levels than at the federal reflects the differing responsibilities of
various levels of government, as well as the responsiveness of peripheral
governments to the needs of their local constituency.  Conversely, the
federal level of government, with its larger international and national
responsibilities, spends a smaller proportion of its government budget on
health.  This pattern is likely to appear in any federal system.

3.19    There is a current trend in Nigeria for the Federal Government to
allocate an increasing share of its revenue for expenditure by state and
local governments. 46/  The health expenditure patterns just identified
have an interesting implication regarding the eventual effects of federal
revenue sharing on health care expenditure in Nigeria.

3.20    Assuming the share of health expenditure remains constant at all
levels of government, every N100 transferred from the federal to the sta_e
levels would reduce health expenditures at the federal level by N2 to N3
while increasing it at the state level by N10 to N11, for a net increase in
health expenditure of N7 to N9.  Similarly, every N100 transferred from

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46/   The local government share of the Federation Account was recently
      increased from 10 to 15 percent.

the federal to the local levels would produce a net increase in health expenditure of ₦28 to ₦38.47/

3.21     Thus one implication of fiscal decentralization and revenue sharing is that Nigeria's government health expenditure will, on balance increase.  Furthermore the predicted increases are substantial and will occur at the local and, to a lesser degree, at the state level.  The LGAs will need to plan for these increases, in order to assure their maximal benefit for the health of the local populations.

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47/  ₦100 transferred from the states to the local governments would have a net positive effect on health expenditure on ₦20 to ₦30.   The recent change in LGA resources, along with their increased health responsibilities, would reflect this effect.  (These calculations assume that percentages at the margin are the same as the averages and are based on Annex E.)

Table 3.5

RECURRENT HEALTH EXPENDITURE AS SHARE OF TOTAL HEALTH EXPENDITURE
FOR FEDERAL GOVERNMENT AND SELECTED STATES IN NIGERIA, 1981-85
(Actuals - Percentage)

|  | 1981 | 1982 | 1983 | 1984 | 1985 | Average |
|---|---|---|---|---|---|---|
| Federal | 51.9 | 56.0 | 56.8 | 79.7 | 79.6 | 63.3 |
| States |  |  |  |  |  |  |
| Anambra | n.a. | n.a. | 98.1 | 95.8 | 86.2 | 93.4 |
| Cross River | 84.6 | 93.6 | 98.3 | 98.6 | 92.5 | 93.5 |
| Imo | 94.3 | 82.0 | 96.4 | 99.7 | 99.1 | 94.3 |
| Lagos | n.a. | n.a. | 92.2 | 97.0 | n.a. |  |
| Ogun | 81.9 | 93.5 | 96.3 | 97.1 | n.a. | ⌐2.2 |
| Ondo | 93.9 | 96.2 | 91.2 | 98.8 | n.a. | 95.0 |
| Oyo | 83.4 | 90.1 | 90.1 | 77.4 | 92.7 | 86.7 |
| Sokoto | 64.6 | 75.5 | n.a. | n.a. | n.a. | 70.0 |
| States, Avg. | 83.8 | 88.5 | 94.6 | 94.8 | 92.6 |  |
| (# in Avg) | (6) | (6) | (7) | (7) | (4) |  |

Source:   Annex F, Tables 7, 9 and 10

3.22      Two large shifts are clear from Tables 3.5 and 3.6. First,
recurrent expenditures absorbed a growing share of health budgets
(Table 3.5).  Second, within recurrent expenditure, personnel costs were
increasingly dominant (Table 3.6), especially at the state and local
levels.  Of the FMOH recurrent budget, 10 to 13 percent was spent within
the central ministry for salaries of ministry personnel and overhead
expenses, including drug supplies;  Table 3.6 shows that within the central
ministry, personnel spending stayed fairly constant during 1981-85 at
approximately 70 percent of recurrent expenditures, except in 1984.  The
balance of the FMOH recurrent health budget passed through the Ministry in
the form of grants and subventions to various entities, such as the federal
hospitals located throughout the country, and to special programs, such as
those of the Primary Health Care Coordinating Unit (PHCCU).48/  Most of
the year-to-year variation in FMOH recurrent expenditure was caused by
variation in its grants and subventions component, which grew in high
expenditure years and shrank in years when the budget was tight, while the
rest of the budget remained relatively unaffected by these changes
(Chart 3.3).

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48/  Support for the PHCCU, like support for the Directorate of Public
     Health Services, contributes indirectly to the delivery of health care
     by enabling the PHCCU to fulfill its mandate to reinforce PHC
     throughout the country.  The PHCCU is now the Directorate of Primary
     Health Care.

Table 3.6

PERCENT OF RECURRENT HEALTH EXPENDITURES ALLOCATED TO
PERSONNEL FOR FEDERAL, STATE AND LOCAL GOVERNMENTS IN NIGERIA, 1981-86
(Actuals)

| | 1981 | 1982 | 1983 | 1984 | 1985 |
|---|---|---|---|---|---|
| Federal Ministry of Health a/ | 71.8 | 69.1 | 69.9 | 53.0 | 66.0 |
| States | | | | | |
| Anambra MOH | n.a. | n.a. | 76.6 | 69.1 | 44.6 |
| Imo MOH | n.a. | 82.8 | 87.9 | 84.6 | 67.9 |
| Imo HMB | n.a. | n.a. | n.a. | 72.0 | 79.0 |
| Ogun MOH | 73.6 | 89.8 | 92.7 | 97.7 | n.a. |
| Ogun HMB | 73.6 | 89.8 | 92.7 | 95.3 | 93.8 |
| Oyo MOH | 62.6 | 94.9 | 92.0 | 79.4 | 83.0 |
| Oyo HMB | 65.6 | 81.5 | 83.2 | 96.9 | 90.8 |
| Avg. LGAs (# in avg.) | 84.2 (3) | 85.3 (4) | 95.4 (5) | 95.1 (15) | 93.1 (14) |

Source: Annex F, Tables 7, 9, 10, 13, 17, 19 and 21.

a/ In this table, the federal percentage is based on the central ministry only (i.e., the six Directorates and PHCCU); grants and subventions are excluded, although they include expenditures for personnel at federally supported institutions, such as federal hospitals.

3.23     State. As budgets were cut drastically, personnel costs absorbed a greater proportion of state health recurrent spending. And over the five-year period 1981-85, recurrent expenditures have often exceeded 90 percent of the state health budget (Table 3.5). While ambitious capital projects were started during the oil boom, these were cut back in favor of recurrent obligations, which already stood at an estimated 84 percent in 1981 at the state level.

Chart 3.3

## ACTUAL FMOH EXPENDITURES, 1980-90
Total, Recurrent & Capital Expenditures

Millions of 1981 Naira



Year

——— Total    —+— Recurrent    —×— Capital
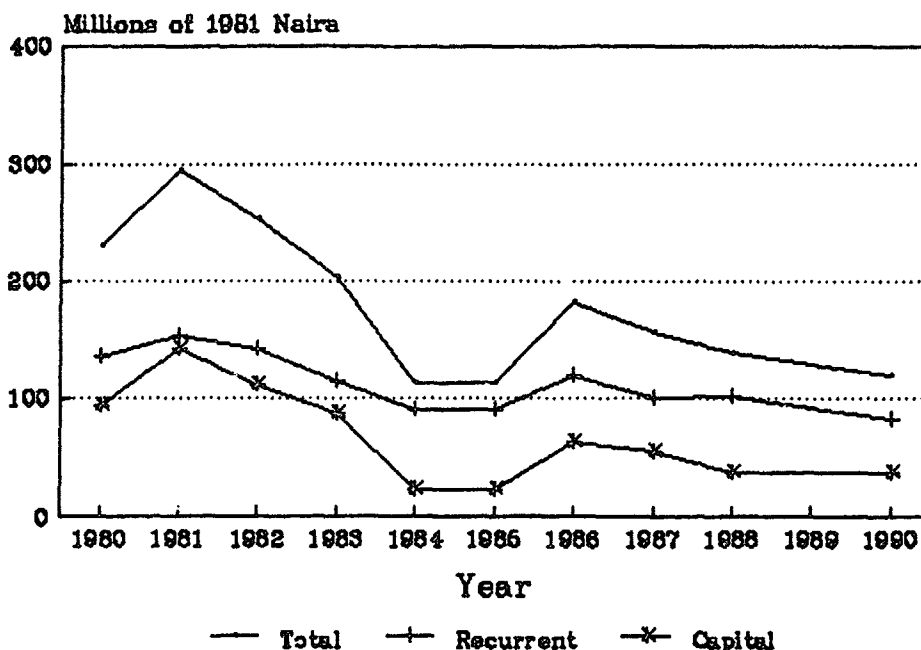
1889 data are not available

3.24    **Local Government Authorities.** Of the three levels of government, the LGAs allocated the highest proportion of their recurrent budgets to health, approximately 31 percent to 40 percent. But during 1981-85, health did not maintain its proportional share of the available resources, falling from 41 to 31 percent in the limited sample. Recurrent expenditures sometimes accounted for the entire amount spent on health (that is, no capital expenditures were made). Within the recurrent budgets, the proportion allocated to personnel was very high, accounting for up to 99 percent of recurrent expenditure in some LGAs, with little remaining for other operating expenses. As federal revenue sharing brings more resources to the LGA health systems, these resources should be used to achieve the Ministry's target of 60 percent of recurrent expenditure (maximum) being spent on personnel. Only with the complementary resources financed by the nonpersonnel components of the budget can the local health personnel be productive.

## D.    Capital Expenditure

3.25    **Federal.** Although nominal recurrent FMOH expenditures have shown a fairly steady increase, nominal capital expenditures have been much less regular. The contrast between the behavior of these two aggregates is most apparent during 1981-83, when the FMOH implemented a major hospital construction program.

Table 3.7

FEDERAL CAPITAL EXPENDITURE APPROPRIATION TO HEALTH
(Actuals, Millions of Naira)

| Federal Program | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 |
|---|---|---|---|---|---|---|
| Hospital Programs | 82.0 | 101.6 | 91.9 | 25.3 | 31.1 | 61.5 |
| Training | 5.3 | 2.5 | 4.3 | 2.4 | 2.1 | 2.5 |
| Mfg. Drugs & Vaccines | 1.0 | 1.0 | 1.2 | 3.9 | 0.8 | 1.6 |
| Laboratories | 1.4 | 1.6 | 1.1 | 0.9 | 0.4 | 0.8 |
| Primary Health Care | 50.9 | 11.0 | 14.3 | 8.5 | 8.4 | 42.5 |
| Communicable Disease | 1.6 | 2.8 | 3.8 | 1.7 | 2.7 | 10.8 |
| Other Specific Programs | n.a. | n.a. | n.a. | 0.1 | 0.1 | 11.7 |
| TOTAL CAPITAL BUDGᵉT | 142.1 | 120.5 | 116.6 | 42.8 | 45.5 | 131.5 |

Source: FMOH.

Conclusion

3.26    This chapter has examined in detail public resources for health
during the period 1981-85, and later data show a continuation of the trends
then set in motion.  The nominal recurrent budget for the FMOH has shown a
fairly steady increase, more than doubling between 1981 and 1990, but in
real terms it is only one half of its previous value.  The capital budget
has fallen more drastically, to only one quarter of its value, and shows
more variability.  But the federal budget is perhaps only one third of
total public sector expenditures on health, and indications are that all
three tiers of the sector have suffered from the current constrained
economic situation.

3.27    With the recent sharp decline in resources, health policy has, of
necessity, been more clearly defined.  In accord with the National Health
Policy of 1988, high priority has been placed on preventive health care
rather than curative and on improving the efficiency of public sector
services, including the provision of an adequate supply of drugs and better
maintenance.

3.28    The current trend toward rechanneling federal revenue through
state and local budgets can be expected to produce a slight reduction in
federal health expenditures which could be more than offset by substantial
increases in state and local expenditures on health.  This change offers
the promise of improved supplies and services at the theoretically more
accountable local government health facilities.  But careful planning will
be necessary to assure that the increased resources redress the balance
between the nonpersonnel and personnel components of the state and LGA
health budgets.

3.29     The National Health Policy highlights the fact that the health care system is a comprehensive one, which supports community involvement and collaboration with nongovernmental providers of health care.  A possible policy response to help cushion health care budgets against future shocks is to define, within the recurrent budget, both "core" and "noncore" expenditure categories.  "Core" categories of activities, which might include essential public health services that generate significant positive externalities such as immunization and ante-natal care, would be fully funded regardless of budgetary eventualities.  The "noncore" categories could include certain curative services for which funding would be reduced in times of need.  To facilitate flexibility in the personnel budgets for noncore health care activities, the government could contract those services out each year to local providers.49/

3.30     In subsequent chapters of this report, the health care system in one state, Ogun, is examined, and the strength of both the public and the private health care sectors assessed.  Based on this assessment, the opportunities for future development of the provision of health care are identified, including possible action in areas such as personnel, drug supply and cost recovery.

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49/   The size of these contracts would vary annually according to the governments budget that year.  This policy option would be difficult to implement in states with few physicians in the private sector, but Ogun State, the focus of the remaining chapters of this report, might be a particularly apt place to begin such policy experiments.

NIGERIA: HEALTH CARE COST, FINANCING AND UTILIZATION

## IV.  HEALTH CARE IN OGUN STATE

### A.  Description of Ogun State

4.01    Introduction.  This review of Ogun State's health situation is intended to serve as a point of reference for the Nigerian health system as a whole.  The discussion will strive to assess the extent to which the findings in Ogun State may be relevant for the rest of Nigeria.  This chapter provides a detailed description of the State and its health care facilities.  Chapter V then uses the survey results from Ogun State to provide detailed analyses of facility operating costs, household demand for health care, and cost-recovery opportunities.

4.02    Background.  Created in 1976 as one of three states from the former Western State, Ogun State comprises the old provinces of Abeokuta and Ijebu and covers an area of 16,410 sq.km.  Strategically situated to the north of the federal capital, Lagos, Ogun State borders the Republic of Benin to the east, Oyo State to the north, and Lagos State and the Atlantic Ocean to the south.  The state capital is Abeokuta.  (See Map IBRD 22161R)

4.03    Population.  Ogun State's 2.85 million people (1986 estimate) are largely a rural (about 70 percent live in rural areas) and Yoruba-speaking population.50/  The density of 174 persons per sq.km. is, however, significantly above the average for Nigeria (127 per sq.km.).  At least 45 percent of the population is under 15 years old.  Of the sample population of 20,600 people in 4,700 households, slightly more than half (53 percent) are Christians, while most of the remainder (46 percent) are Muslim.  About 53 percent of household members are single, 46 percent are married, and 1 percent are separated or divorced.  Employed persons constituted 52 percent of the sample population.  English is widely spoken, and citizens from all parts of Nigeria and foreigners from various countries are represented.  Seventy percent of respondents reported monthly income of less than N100 and only 6 percent above N200, but underestimation of income is usual in such a survey.51/

4.04    Ogun State is divided into ten Local Government Authorities (LGAs), listed here with their capitals in brackets:

|  |  |
|---|---|
| Abeokuta | [Abeokuta] |
| Egbado North | [Aiyetoro] |
| Egbado South | [Ilaro] |
| Ijebu-Ode | [Ijebu-Ode] |
| Ijebu-Remo | [Sagamu] |
| Ijebu North | [Ijebu-Igbo] |
| Ijebu East | [Ogbere] |
| Odeda | [Odeda] |
| Ifo/Ota | [Ota] |
| Obafemi/Owode | [Owode] |

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50/  The main groups are the Egba, Egbado, Ijebu, Ijebu-Remo, Awari, and Egun.

51/  '                                            the             was                      ee

About two-thirds of the population live in four local government areas:
Abeokuta, Egbado, Ijebu-Ode, and Ijebu-Remo. More than half the population
of Abeokuta, Ijebu-Remo and Ijebu North live in cities or towns. On the
other hand, Odeda, Obafemi/Owode, and Ijebu East are almost entirely rural.
The 1986 Ogun State Gazette classified 15 towns as urban, 20 as semi-urban,
and the remaining villages and hamlets as rural.

4.05    Agriculture and Industry. Farming is the principal occupation of
Ogun's residents, who raise rice, maize, plantains, cassava, yams and
bananas. Cash crops include cocoa, kolanut, rubber, palm oil, palm kernel
and logging. Ogun State is the largest producer of kolanuts in Nigeria.
Farming and Ogun's mineral resources (such as limestone, chalk, phosphates,
clay and stone) have encouraged the growth of cement, food canning, foam
rubber, and paint manufacturing industries. Relatively less developed than
agriculture or industry, the service sector concentrates on commerce,
hotels, restaurants and health services.

4.06    Infrastructure. Largely owing to its location, Ogun is
relatively better developed than most Nigerian states, and its residents
probably enjoy a higher standard of such social amenities as schools, roads
and health services than the average. The state possesses a good basic
infrastructure, although this has suffered through lack of maintenance in
recent years. The Lagos-Ibadan expressway passes through Ogun, as do four
other large roads linking Ogun with the northern and eastern Nigerian
states. Yet many rural localities are all but inaccessible during the
rainy season because the roads become impassable. The main railway line
from Lagos to other points in Nigeria passes through Ogun, and the Lafenwa
station in Abeokuta has become a major market center. Most urban towns
have electricity, and most of those without should have it within a few
years. Water for industry is already available in all the urban towns, and
the State Water Corporation is currently designing and implementing an
expansion of the piped water system.

4.07    Government. The highest policy-making body in Ogun is the State
Executive Council, which is chaired by the Military Governor with
assistance from 10 Civil Commissioners. The Civil Commissioners each head
a state ministry, aided by a Director General. As part of the recent civil
service reforms, the Commissioner has become the Chief Executive Officer
accountable for the ministry finances. Each LGA had a Chairman and a Chief
Executive assisted by four part-time staffers, but as part of the
transition to civilian rule, LGAs now have a sole administrator until local
elections are held in 1990. For health purposes, the state is divided into
five zones:

> Abeokuta (Abeokuta, Odeda, Obafemi/Owode)
> Ifo/Ota
> Ilaro (Egbado North, Egbado South)
> Ijebu (Ijebu-Ode, Ijebu North, Ijebu East)
> Sagamu (Ijebu-Remo)

4.06       Health care services are provided by the State Ministry of Health (SMOH), the State Health Management Board (SHMB), and the Local Government Authority (LGA).  Chart 4.1 shows the organization of the health agencies in a typical state.  The functions of the SMOH include:

(1)      General formulation and control of health policies;

(2)      Legislation relating to health matters:

(3)      Supervision of medical and health training and research institutions in the State including:
- the Central Health Unit for training and research;
- the School of Health Technology;
- all Nursing and Midwifery schools.

(4)      The direct control of the statistical and epidemiological unit;

(5)      External aid for health services in the State;

(6)      Pharmaceutical inspection and licensing control;

(7)      Registration and inspection of private hospitals and maternity homes;

(8)      Monitoring the activities of the State Health Board and the Health Zones;

(9)      Representation at the federal level on all health matters and bodies including the Nigeria Medical Council, the Nursing and Midwifery Council of Nigeria, the Pharmaceutical Board of Nigeria, the Royal Soc'ety of Health, the West African Examinations Board and the National Council on Health;

(10)     Liaison with the Federal Ministry of Health and international agencies and organizations on health matters;

(11)     Procurement of drugs for and administration of the drug revolving fund scheme.

The SHMB manages and controls all state-level medical facilities and their staffs with the LGAs now responsible for providing the primary health care services which are facility-based (mainly primary health centers, dispensaries and maternities), including the appointment, posting and disciplining of the relevant staffs.  The main functions of the SHMB are: 52/

(1)      To manage and control all health institutions taking charge of activities and preventive services of the State Government;

(2)      To execute the general health policies formulated by the Ministry of Health and approved by the Government;

(3)      To provide and standardize all hospital equipment in the State;

(4)      To appoint, post and discipline health personnel from grade 07;

(5)      To promote health personnel from Grade Level 07 subject to the approval of the Military Governor;

(6)      To appoint, confirm, promote and discipline administrative employees Grade Level 01 - 06;

(7)      To consider and collect the Annual Estimates of the Zonal Health Boards;

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52/   In 1990, responsibility passed to the LGAs for appointing and paying staff of primary health care centers now under their jurisdiction.

(8)     To advise on revenue generation within and in keeping with Government Policies on Health Services;

(9)     To initiate and control building programs of hospitals and health institutions in accordance with government policy and to maintain buildings and equipment use in health institutions;

(10)    To purchase equipment and food to be used in health institutions.

## CHART 4.1

### Structure of Health Agencies in a Typical State 1/

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                              ┌──────────┐
                              │ Governor │
                              └────┬─────┘
         ┌─────────────────────────┼─────────────────────────┐
┌────────┴────────┐      ┌─────────┴──────────┐      ┌────────┴─────────┐
│  Commissioner   │      │ Other Commissioners/│      │Local Government Unit│
│   of Health     │      │    Ministries      │      │ in Governor's Office│
└────────┬────────┘      └────────────────────┘      └────────┬─────────┘
   ┌─────┴─────┐                                               │
┌──┴──────┐ ┌──┴──────────┐                                    │
│Ministry of│ │Health or Hospital│                             │
│of Health 1/│ │Management Board│                     ┌────────┴──────────────┐
└──┬──────┘ └──┬──────────┘                           │Local Government Authorities (about 4)│
┌──┴──────┐ ┌──┴──────────┐                           └────────┬──────────────┘
│State-operated│ │State-operated│                          ┌───┴────┐
│training     │ │health facilities│                        │  LGA   │
│institutions │ │(hospitals, health│                       │Chairman│
└─────────┘ │centers, etc.)│                                └───┬────┘
            └─────────────┘                        ┌───────────┴─────────┐
                                          ┌────────┴────────┐  ┌─────────┴──┐
                                          │Health and Social│  │  Other     │
                                          │Welfare Councillor│  │ Councillors│
                                          └────────┬────────┘  └────────────┘
                                          ┌────────┴────────────┐
                                  ┌───────┴───┐     ┌───────────┴────────┐
                                  │Sanitation │     │Primary Health Care │
                                  │and Health │     │Facilities & Programs│
                                  │Inspection │     └────────────────────┘
                                  └───────────┘
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1/ Consists of eight departments as a result of 1988 Civil Service Reform: State ministries follow pattern of the Federal Ministry of Health (See Annex A).

4.09     Health Status of Ogun State. 53/   Ogun State's general health picture closely approximates that of the rest of Nigeria. The estimated total fertility rate of 6.2 is somewhat lower in Ogun State than in the rest of Nigeria (6.6),54/ and infant mortality rates are similar, estimated at 90 to 120 per 1,000 live births (compared with the estimate of 103 for Nigeria). At least 25 percent of children die before their fifth birthday. Death before age six is estimated to account for one half of all deaths. The main causes of morbidity and mortality are malaria, diarrhea, respiratory and infectious diseases, and accidents. Malaria alone accounted for more than 75 percent of cases at comprehensive health centers in 1985, while dysentery, measles, pneumonia and whooping cough each represented 7 percent of cases. The vast majority of these deaths could be prevented by immunization, better hygiene, better nutrition, and early primary care intervention (such as oral rehydration therapy). Maternal mortality would decrease sharply with better prenatal and midwifery services. The principal group with preventable mortality in Ogun State -- childbearing women and infants and young children -- could be greatly aided by primary care methods already in existence.

B.    State Financial Resources for Health 55/

4.10     State Government Revenue. The financial resources of Nigerian states come from a combination of internally generated funds and statutory allocations from the Federation Account. Until 1984, when revenue diversification began in earnest, the federal allocation was the primary revenue source for the Ogun State budget. It fell from over 90 percent in 1981 to around two-thirds of total resources available in 1986. Internally generated revenue has come from various sources, a declining share being taxes (60 percent in 1986). The share of SMOH and SHMB reached 2.8 percent in 1985 as against 0.7 percent in 1982. The shift toward better management practices in the mid-1980s transformed state finances, mainly by achieving a better balance between revenue and expenditures, moving the State from deficit to surplus (see Table 4.1).

4.11     Revenue -- State Health Sector. The dramatic rise in the share of internally generated income in state resources was triggered by the decline in the amount of federal disbursements, which occurred because of falling oil revenues and rising federal indebtedness. Federal contributions to state revenues declined steadily during 1981-84 before

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53/   Ogun State Restructured Draft State Health Plan, 1987-1991, Ogun State, Ministry of Health, 1986.

54/   In 1988, the World Bank estimated a total fertility rate of 6.6. As both are estimates based on limited data, the difference is not considered significant.

55/   Household expenditures on health and private resources are not considered because of lack of data.

increasing in 1985. Not surprisingly, state revenues were adversely affected during this period, but they made a good recovery after 1984.

4.12    The bulk of Ogun State's health sector revenue comes from user fees, which accounted for 84 percent of such revenue in 1986. The most productive user fees are for drugs, prenatal care, and laboratory tests. Additional user expenses are bed fees, catering, ambulance fees, mortuary fees and laboratory fees. Other charges include fees for tenders, examinations, student boarding, patent medicine licenses and private facility registration, the last two being the most important. State health revenue in 1986 exceeded ₦1.1 million. This figure represented a 150 percent increase over 1984 state revenue.

## Table 4.1

OGUN STATE:   REVENUE AND EXPENDITURE (ACTUAL)
(Percentages)

|  | 1981 | 1982 | 1983 | 1984 | 1985 |
|---|---|---|---|---|---|
| **Revenue** | | | | | |
| Internally generated | 7.8 | 13.9 | 19.5 | 32.6 | 32.4 |
| of which | | | | | |
| % Health | 0.7 | 0.3 | 0.5 | 0.7 | 0.8 |
| % Health Management Board | 0.0 | 0.04 | 0.6 | 1.8 | 2.5 |
| Federal Allocation | 92.2 | 86.1 | 80.5 | 67.4 | 67.6 |
| **TOTAL** | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| **Expenditure** | | | | | |
| Capital | 36.8 | 22.6 | 19.6 | 14.0 | |
| of which | | | | | |
| % Health | 1.9 | 1.4 | 0.9 | 1.5 | |
| % Health Management Board | 2.3 | 1.5 | 1.1 | 1.1 | |
| Recurrent | 63.2 | 77.4 | 80.4 | 86.0 | |
| of which | | | | | |
| % Health | 2.3 | 2.8 | 2.5 | 1.9 | |
| % Health Management Board | 8.7 | 9.5 | 9.9 | 12.1 | |
| **TOTAL** | 100.0 | 100.0 | 100.0 | 100.0 | |
| Revenue as % of expenditure | 63.0 | 81.2 | 73.9 | 113.9 | 143.1 |

Source:   Ogun State Ministry of Health, Restructured Draft State Health Plan, 1987-91

4.13    The State Drug Revolving Fund was introduced in 1984. Using a list of essential drugs and bulk purchasing for the supply of drugs to both primary health care units and hospitals, the Fund was established with the concept that all drugs prescribed (in both in-out patient settings and in hospitals) would be charged for. As of 1986, the Fund was reportedly yielding a profit and had increased the supply of drugs and services at all levels of government health facilities. This may be why a relatively high

proportion of the patients surveyed reported receiving drugs in public facilities (73 to 87 percent).

4.14     Revenue -- LGAs. Federal subventions from the Federation Account are the most important source of revenue for LGAs in Ogun State. These grants may reach 80 to 90 percent of a local government's actual yearly income, and in no case dip below 50 percent. Ijebu North LGA is the most dependent on federal funds. The only taxes that LGAs are permitted to levy under Nigeria's constitution are taxes on property called "tenement rates." Aside from tenement rates and federal grants, other sources of LGA income are from licenses, fees and rents. In addition, income from state grants, fees from health facilities, and investment income make up a minuscule proportion of LGA revenue in most cases. With the exception of Egbado South, which suffered a 50 percent decline, LGA income rose quite substantially during 1984-86, in most cases by more than 50 percent. In some cases, the rise was due to internally generated revenue. Most LGAs are financially prudent, spending somewhat less than their income.

4.15     State Expenditure Patterns. The expenditure pattern of Ogun State has shown wide variation in capital while recurrent levels have been sustained. Personnel costs especially have claimed an increasing proportion of recurrent expenditures in the public health sector, rising from 74 percent in 1981 to 98 percent in 1984. This is in contrast to the average expenditure on salaries for the State of 70 percent of the recurrent budget, rising to 82 percent.56/ Education, the largest sector, accounted for about 40 percent of actual recurrent expenditure during 1980-86 in Ogun State, followed by health at around 12 percent.

4.16     Health Expenditure -- LGAs. Like the State Government, the LGAs in Ogun State practiced prudent financial management during the early 1980s,57/ running surpluses in 1984 and 1985. Personnel costs accounted for around 80 percent of LGA recurrent health expenditure during 1984-86. Health received the greatest share of recurrent expenditure from most LGAs during the same period, about one-third. This is not surprising because LGAs are responsible for operating the State's primary health care facilities, dispensaries and maternities.

C.     Modern Health Services in Ogun State

4.17     Types of Facilities. Ogun State's 445 modern health care facilities are heavily weighted toward primary or secondary care. Primary care facilities typically provide the first point of contact between the patient and the health care delivery system. Secondary care institutions (mainly hospitals and comprehensive health centers), with their larger staffs and better equipment, accept referrals from primary care providers and emergency cases that the primary institutions cannot handle. Tertiary care institutions in Ogun State include the University Teaching Hospital at

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56/     In 1986, 79% of public hospital recurrent expenditure went on personnel; the figure was 82% in public maternities.

57/     The period for which data were collected.

Sagamu and Aro Hospital at Abeokuta, which provide various types of specialized care. By its own count, the state has 38 hospitals, 9 comprehensive health centers, 56 health clinics, 17 primary health clinics, 164 maternities, 128 dispensaries and 34 other special facilities. In addition, there are many providers of traditional care. This group of practitioners includes herbalists, traditional birth attendants, spiritual healers of various religious denominations, and other alternate sources of health care. Attempts are being made to identify and register herbalists and traditional birth attendants. The SMOH has a committee made up of traditional health practitioners who are charged with identifying, standardizing and coordinating this type of care with the modern health care system.

4.18    Ownership of Health Facilities. About 70 percent of health institutions are publicly owned; 30 percent are privately owned. Local governments own about 58 percent of all health facilities (mainly dispensaries and maternities); state governments own only about 10 percent. Private facilities exist at primary, secondary and tertiary levels, but within each level the market share of private care providers varies greatly. For example, two-thirds of all hospitals are public but two-thirds of comprehensive health centers are private. Most maternities (68 percent) are public, while basic health centers are almost evenly divided (57 percent public-43 percent private). Despite the dominance of public over private hospitals, both in number and size, only 57 percent of available beds are in the public sector. Among primary health facilities (dispensaries, maternities and basic health centers), 72 percent are public. Of health personnel, about 30 percent are under private control; 50 percent of physicians are private sector employees.

4.19    In the private sector, health facilities can be grouped under three main headings: for-profit, nonprofit and missions. Of the three, private for-profit institutions account for 91 percent of private facilities. Mission facilities account for 2 percent of private facilities, while private nonprofit institutions comprise the remaining 7 percent. Public facilities are owned by the federal, state or local government. Some 84 percent of all public facilities are owned by LGAs, the great majority being maternities and dispensaries. The federal government owns three comprehensive health centers in Ogun State, or 1 percent of public facilities, while the State Government owns 15 percent of the public facilities.

4.20    The public sector also operates various program- or disease-specific health institutions, such as dental centers, chest clinics, leprosy control units, family health centers, and maternal and child health units.

4.21    Facility Services. The services offered vary according to the type of facility. With respect to inpatient care, both public and private hospitals are heavily oriented toward maternity cases. Comprehensive health centers and health clinics admit a smaller proportion of patients for maternity care and instead concentrate on surgery, infectious diseases and general care. Primary health care centers and dispensaries offer

almost no inpatient care; if they do, it tends to be for maternity cases (see Table 4.2).

## Table 4.2

### TYPES OF INPATIENT ADMISSIONS BY FACILITY TYPE

| Type of facility | Deliveries (%) | Surgery (%) | Infectious Disease (%) | Other (%) | Total Admissions (#) |
|---|---|---|---|---|---|
| Hospitals | | | | | |
| Public | 46 | 32 | 7 | 15 | 3318 |
| Private | 49 | 18 | 13 | 20 | 1791 |
| Comp. Health Centers | | | | | |
| Public | 29 | 21 | 14 | 37 | 836 |
| Private | 11 | 2 | 6 | 82 | 325 |
| Maternities | | | | | |
| Public | 100 | - | - | - | 305 |
| Private | 89 | 1 | 2 | 7 | 203 |
| Primary Health Care | | | | | |
| Public | 50 | - | 2 | 48 | 278 |
| Dispensaries | | | | | |
| Public | 100 | - | - | - | 9 |
| Health Clinics | | | | | |
| Private | 2 | 23 | 37 | 38 | 220 |

Source: AHCS.

4.22    Most care offered by outpatient services (except at hospitals and dispensaries) is preventive. This is especially true of health clinics and maternities, which classify 90 percent of patient visits as preventive (see Table 4.3).

## Table 4.3

### TYPES OF OUTPATIENT VISITS BY FACILITY TYPE -- PUBLIC VS. PRIVATE

| Type of facility a/ | Preventive visits (%) | Curative visits (%) | Total visits (#) |
|---|---|---|---|
| **Hospitals** | | | |
| Public | 41 | 59 | 22,760 |
| Private | 48 | 52 | 24,706 |
| **Maternities** | | | |
| Public | 97 | 3 | 6,228 |
| Private | 92 | 8 | 2,856 |

Source: AHCS.

a/  Data for comparisons between public and private facilities are available only for hospitals and maternities.

4.23     **Distribution of Health Facilities: Public and Private.**  In the urban areas of Ogun State private health facilities outnumber their public counterparts.  In fact, 82 percent of private health facilities are located in urban areas (presumably because of profit considerations), and 57 percent of urban health facilities are privately owned.  Government care providers tend, though not exclusively, to locate in rural areas where private care providers are fewest.  Almost 75 percent of public care institutions are rural.  Around 60 percent of private facilities are located in Abeokuta, Ifo-Ota, and Ijebu North; on the other hand, 56 percent of public facilities are found in Egbado South, Abeokuta, and Ijebu-Remo.  Obafemi/Owode has no private health institutions at all.  Odeda, Obafemi/Owode and Egbado North have no secondary or tertiary health care providers.  Although Ogun State's urban/rural population ratio is 30:70, about 44 percent of all facilities are in urban areas while 56 percent are rural.  This implies that urban residents enjoy a bias in their favor in the distribution of health facilities in Ogun, a situation typical of Nigeria and o her developing countries.  Compounding this inequity are the poor state of rural roads and the lack of reliable motor transport to rural areas.  Rural residents who require more than primary care thus have to pay more money to travel longer distances in less comfort and safety than urban residents.

4.24     **Bed Distribution.**  The AHCS survey reported that Ogun State has about 4,000 beds in health facilities of all types.  About half of these are devoted to maternity; about 25 percent are pediatric beds; about 22 percent are used by surgical/medical patients; and the remaining 3 percent are allocated to patients suffering from infectious diseases and other

ailments. Sixty-three percent of all facilities are located in the
Abeokuta, Ifo-Ota, Egbado South, Ijebu-Ode, and Ijebu-Remo LGAs. These
areas are home to about 60 percent of Ogun's population but account for
about 75 percent of the available hospital and clinic beds. At the other
extreme, Odeda, Obafemi/Owode, and Egbado North have the lowest number of
beds. These three LGAs have about 25 percent of the population and 20
percent of the facilities but only 11 percent of the beds. While some
concentration of beds in urban areas reflects a deliberate policy based on
the referral system, relative access must also be considered.

4.25     Distribution of Health Personnel -- Geographic. Ogun State has
around 400 practicing doctors (a 1:7,100 ratio) and almost 200 pharmacists
(a 1:15,000 ratio). Nurses and midwives make up 25 percent of health
professionals (a 1:5,000 ratio). Since the onset of economic austerity in
1984, including a hiring freeze, employment in the public health sector has
declined. For example, during the first six months of 1986, 287 of 1,488
government nurses and midwives left their jobs. Many government health
workers who lost their jobs found work in the private sector, so the
general availability of health manpower was not greatly affected. Although
statistics are not available, it appears that far fewer nonprofessional
workers have left their public sector jobs. This may help to account for
the growing proportion of salary outlays going to service, maintenance and
support personnel who are not actually engaged in providing health care.

4.26     The urban-biased pattern which prevails in the distribution of
health facilities also obtains in the distribution of health personnel.
However, facilities appear to be more evenly distributed than health
personnel, which is perhaps a better measure of health service
availability. Abeokuta, Ifo-Ota, Ijebu-Ode, and Ijebu-Remo LGAs, with 47
percent of the population, have almost 75 percent of the doctors, 82
percent of the nurses and midwives, and 69 percent of all health workers.
On the other hand, Odeda, Obafemi/Owode, Egbado North, and Egbado South
LGAs, with 39 percent of the population, have 11 percent of the doctors, 12
percent of nurses and midwives, and 18 percent of all health workers.
Egbado South, with 14 percent of the population, has many lightly staffed
dispensaries but no hospitals, perhaps explaining why it has relatively
many facilities (18 percent of the total) but relatively few personnel (8
percent of the total). These results should be interpreted carefully in
light of two other points. Population estimates currently available are
questionable because they are projected from the 1963 census. In addition,
rapidly growing urban centers may include a growing proportion of the
population in the future. The distribution of facilities and beds compared
with population is shown in Table 4.4.

4.27     Distribution of Health Personnel -- Public and Private Sectors.
Considering that the private sector owns only 30 percent of all health
facilities, it has had great success at attracting doctors. Roughly half
of all doctors work in private sector jobs. One explanation for this
disparity may be double counting, because it appears that many publicly

employed doctors also have private practices, especially in urban
settings.58/  The ratio of public to private sector employees in other
job categories is more in line with the 70:30 ownership ratio:  66:34 among
nurses and midwives and 61:39 among support staff.  The ratios get skewed
again for community and public health workers (95:5) and pharmacists
(83:17).  The State Government, which owns only 10 percent of the health
facilities in the state, employs 46 percent of the health personnel.  The
private sector owns about 30 percent of facilities and employs roughly the
same proportion of health workers (31 percent).  The LGAs own 50 percent of
all of Ogun's health facilities but employ only 20 percent of its health
workers.59/  This is not surprising because LGA-owned dispensaries are
very lightly staffed.  Finally, the Federal Government employs only 1
percent of Ogun's health workers.

Table 4.4

OGUN STATE:  DISTRIBUTION OF FACILITIES AND BEDS
COMPARED TO POPULATION
(Percentage)

|  | Population | Facilities | Beds |
|---|---|---|---|
| Abeokuta | 14.8 | 13.5 | 23.5 |
| Ifo/Ota | 9.5 | 12.2 | 10.9 |
| Odeda | 7.5 | 7.0 | 2.5 |
| Obafemi/Owode | 8.8 | 5.9 | 3.3 |
| Egbado North | 8.4 | 6.5 | 5.0 |
| Egbado South | 13.9 | 17.3 | 13.9 |
| Ijebu-Ode | 12.2 | 14.9 | 13.3 |
| Ijebu North | 7.4 | 6.8 | 7.8 |
| Ijebu East | 7.5 | 5.0 | 6.9 |
| Ijebu-Remo | 10.0 | 11.3 | 13.0 |
| TOTAL | 100.0 | 100.0 | 100.0 |
|  | (2,847,511) | (445) | (3,969) |

Source:  AHCS.

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58/  Although Ogun State in 1986 had 185 registered doctors (87 in the
public sector and 98 in the private) the survey results reported 382
doctors (191 each in the public and private sectors).

59/  This will shift under the 1990 changes in LGA responsibilities.

4.28     Staffing mix -- Public and Private Sector.  Staffing mix at
health facilities is measured by analyzing the number of staff per
admission (or visit) and the relative numbers of doctors, senior health
workers, and non-health workers.  With two exceptions, private facilities
have higher staff per admission and per visit ratios than public
facilities.  This is true with respect to senior medical professionals and
to health workers in general.  The exceptions are physicians per admission
and health worker per visit in small hospitals where the public facilities
have higher ratios.  (While suggesting that private facilities offer a
higher level of care than public facilities, the data may actually reflect
underutilization.)  No clear pattern emerges in comparing ratios of health
with non-health workers at public and private facilities.  Of workers at
public health facilities, 59 percent are doctors, nurses, pharmacists or
other professionals; the remaining 41 percent are support staff.  By
comparison, the proportions are 52 percent and 48 percent respectively in
the private sector.  Except in small hospitals, there are more physicians
per health worker in private than public facilities.  The ratio of senior
health workers to health workers indicates that private facilities depend
more on senior health workers in all facility types (see Table 4.5).

4.29     Availability of Equipment - Public and Private Sector.
Inventories for all kinds of equipment -- X-ray machines, operating rooms,
laboratories, and vehicles -- are higher in private than public facilities.
In addition, private facilities tend to be newer than their public
counterparts.  For instance, while public hospitals are on average 28 years
old, private ones average only 20 years old; public comprehensive health
centers were built on average 32 years ago, but private ones were built
only 7 years ago; public maternities tend to be about 25 years old, but
private maternities average 18 years old.  Equipment at private and public
institutions is not always usable, however, due to maintenance problems and
lack of spare parts:  at any given time, only 63 percent of the X-ray
machines, around 83 percent of the laboratories and operating rooms, and 79
percent of the two-wheel-drive vehicles are in usable condition.

Table 4.5

STAFFING MIX FOR PUBLIC AND PRIVATE FACILITIES: RATIOS
(Standard Deviation in Parentheses)

| Facilities Operational Classification | Physician/ Health Worker | Senior a/ Health Worker/ Health b/ Worker | Health Worker/ Non-Health Worker |
|---|---|---|---|
| Small Hospital | | | |
| Public | 0.14(0.02) | 0.97(0.02) | 1.80 (0.52) |
| Private | 0.13(0.01) | 0.99(0.1) | 0.75 (0.67) |
| Comprehensive Health Center | | | |
| Public | 0.17(0.15) | 0.82(0.18) | 1.87 (0.66) |
| Private | 0.26(0.10) | 0.96(0.06) | 1.29 (0.79) |
| Basic Health Clinic | | | |
| Public | 0.23(0.25) | 0.60(0.24) | 1.44 (1.50) |
| Private | 0.26(0.18) | 0.96(0.09) | 2.03 (1.81) |
| Maternity | | | |
| Public | 0.09(0.17) | 0.68(0.37) | 0.91 (0.84) |
| Private | 0.22(0.19) | 0.94(0.11) | 1.63 (1.30) |
| Dispensary | | | |
| Public | 0(0) | 0.05(0.19) | 2.05(11.95) |
| Private | 0(0) | 1.00 (0) | 1.00 (1.41) |

Source: Calculations based on data in Ogun State Health Financing Study, AHCS.

a/ Senior health worker = doctors + nurses + midwives.

b/ Health workers = senior health workers + community health workers + pharmacists + public health workers.

4.30    Fees and Pricing. As Table 4.6 shows, private facilities clearly charge more for every form of health service than public facilities. Moreover, in general, they do a better job than their public counterparts in recovering their operating costs, including drug costs, from patients. Fees in public facilities are far lower than fees in private facilities. Lower charges, however, mean lower revenues. This implies that public institutions, squeezed as they are by an ever larger proportion of expenditure for personnel, have even less money to buy drugs and other supplies. Patients are likely to avoid institutions where they know they will not be able to get treatment, even if the price is low.

4.31    The 1986 survey results showed that in Ogun State 92 percent of private patients were supplied with drugs, while about 80 percent (73 percent to 87 percent) of patients at public facilities had access to drugs. This is high relative to public facilities in other states and

reflects the fact that Ogun State had initiated a Drug Revolving Fund in 1984.

Table 4.6

MINIMUM FEES AND CHARGES FOR SELECTED HEALTH SERVICES
(In Naira)

| Type of Service | Private Facilities (lowest, highest) | Public Facilities (lowest, highest) |
|---|---|---|
| Registration -- maternity | (2, 25) | (1, 20+) |
| Registration -- outpatient | (1, 15) | (0.50, 2) |
| Registration -- inpatient | (1, 50) | (1, 10) |
| Immunization | (1, 5) | Free |
| Paracetamol | (.1, 1.2) | (.02, .9) |
| Contraceptive pills | (3, 15) | Free |
| Condoms | (.30, 3) | Free |
| Laboratory -- CBC | (1.5, 30) | (2, 25) |
| Laboratory -- Urinalysis | (1.5, 30) | (2, 5) |
| Chest X-ray | (10, 25) | (10, 10) |
| Prenatal care (per visit) | (10, 100) | (20+, 2) |
| Delivery, basic | (2, 80) | (20, 2)) |
| Delivery, sections | (60, 650) | (40, 40) |
| Appendectomy | (60, 500) | (20, 40) |
| Room/board (per day) | (3, 12) | (.50, 2) |
| Dressings | (1, 25) | (.50, 10) |
| Malaria (full treatment) | (0.50, 40) | (0.50, 10) |
| Setting broken arm | (2, 100) | (5, 20) |

Source: AHCS.

## Conclusion

4.32     Within Ogun State, both the State Government and LGAs experienced good financial management during the mid-1980s.  The State increased revenues by 150 percent during 1984-86, and the LGAs operated at a surplus. However, the high proportion of expenditure on personnel squeezed the funds available for drugs, supplies and maintenance, although the introduction of a drug revolving fund has facilitated public sector drug supplies.  The availability of drugs is repeatedly cited as the factor of primary importance in attracting patients to public sector facilities.

4.33     Clearly the private health sector plays an important role in Ogun State.  Around a third of Ogun's facilities and personnel are privately controlled, and this percentage may reach 50 percent for doctors and senior health workers.  Patients at private facilities may get better care, mainly because inventories of all types of equipment and supplies (including drugs) are higher than in the public sector.  In addition, public facilities are older than private ones.  The private sector controls a large part of secondary care facilities, such as comprehensive health centers.  The public health sector dominates primary care facilities, such as dispensaries, and maternities.  Private facilities predominate in the towns, but they are practically nonexistent in some parts of the countryside.

4.34     Ogun State's health care system has the expected urban bias, which is more evident in personnel than in facilities.  City dwellers have much easier and wider access to health services of all types than people in rural areas.  In some places the nearest clinic is over 20 km. away. Another possible problem area in the public health sector is staffing. Most private facilities have higher staff per admission and per visit ratios than public facilities and depend more on senior health workers.  In addition, as discussed in Chapter V (paragraphs 5.20 and 5.21), utilization levels appear to be low in both the public and the private sector.  The analysis of facility efficiency used as a minimum acceptable level 600 visits per health worker per year -- a very low level, which, if evenly spread would amount to an average of around two visits per day.60/

4.35     Ogun State shares these concerns with other parts of Nigeria.  In the following chapter, the problems are examined in detail with a view to identifying appropriate policy adjustments to address them

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60/   Initially, a moderate level of efficiency of 800 visits per health worker per year was the norm selected, but over half of the 46 facilities in the statistical analysis failed to achieve this and the level was lowered to 600, this being considered the minimum acceptable level of efficiency.

NIGERIA: HEALTH CARE COST, FINANCING AND UTILIZATION

## V.  HEALTH CARE COSTS IN OGUN STATE 61/

## Introduction

5.01    The health care sector in Nigeria faces the problem of how to provide improved services in a period of budget constraints.  As improvements are costly, investments must be carefully selected in order to provide the most service for the least funding.  Using a comprehensive survey of health care in Ogun State, opportunities for facilities to provide better care that more closely responds to patients' needs have been identified.  The analysis is presented in three sections.  In Part A, health facilities in both the public and private sector are analyzed with respect to technical efficiency and costs.  In Part B, the household demand for health care is examined, to understand better where prospective patients look for services and how much they are prepared to pay for them.  In Part C, the information on facilities' supply of health care and the household demand for it are combined in a series of cost recovery simulations.  These simulations are aimed at providing policymakers with a better understanding of cost effective ways to improve health care services.

## A.  Facility Analysis

5.02    After 1970, Nigeria considerably expanded its public and private health care system and improved the ratio of health facilities and personnel to population.  However, since the early 1980s, a marked deterioration in the quality of the public health facilities and their utilization has occurred.  This deterioration stems from limits on public spending due to economic constraints which have sharply reduced expenditure on maintenance, supplies and equipment.

5.03    Part A of this chapter examines issues surrounding the cost of health care, using survey data collected in Ogun State:

   (a)  the financial status of both public and private providers;

   (b)  the cost structure of health care service provision, in both the public and private sectors;

   (c)  efficiency in the public health sector;

   (d)  whether nonpublic providers of health care (such as private for-profit and not-for-profit providers and missionaries) are more efficient than public providers.

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61/  The analysis in this chapter is based on the survey work carried out in 1987 by African Health Consultancy Services (AHCS), Lagos, summarized in Ogun State Health Financing Study, submitted to the Federal Ministry of Health and the Ogun State Ministry of Health, March 1989.

5.04     The facility analysis is in two sections. The first section is a descriptive analysis of recurrent costs, revenues, gross recurrent profit, and cost recovery for public and private facilities. The analysis focuses on small hospitals and maternities, mainly because there are enough of these types in both the public and the private sector to permit comparisons. Financial trends during the period 1985-86 are examined in as much detail as the data allow. The second section discusses the conceptual framework and empirical results of a detailed statistical analysis of efficiency in public and private facilities. (Further background on the data set, methodology and estimation techniques is presented in Annex G.)62/

5.05     A Note on Nomenclature. Nomenclature can be problematic because it tends to vary between public and private institutions and because some institutions have not followed their original mandate. In Chapter IV, the discussion of the health sector in Ogun State used the definitions employed in the State. For the statistical analysis in this chapter, the raw data were reviewed to ensure accurate classification.63/ Operational definitions, applicable to both public and private facilities, were developed to identify six major types of facilities depending on actual services performed. These are listed in Chart 5.1 below.

5.06     Technical definitions:

(a)     Technical efficiency uses minimum quantities of physical inputs to produce a given amount of services;

(b)     Cost-efficient production uses technically efficient combinations of physical inputs that are also the least costly combinations of inputs.64/

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62/     Technical efficiency is examined by estimating a frontier production function (the relationship between personnel and nonpersonnel inputs and the amount of various services produced in a health care facility). Allocative efficiency (cost efficiency) is analyzed by determining whether staffing patterns within a given facility yield a given amount of services at minimum cost. Deviations from cost minimization or cost efficiency are measured by comparing the marginal product of health workers and non-health workers with the relative wages of health workers and non-health workers. The statistical analysis of efficiency concludes by estimating a cost function: the relationship of total recurrent costs to utilization levels, personnel prices and capital stock. The cost equation is used to determine the costs associated with allocative inefficiency, the average and marginal costs for inpatient and outpatient services, and to examine economies of scale and scope.

63/     For example, although a facility may be designated as a comprehensive health clinic with 60 beds, if no doctor is available the facility should more appropriately be called a basic health clinic.

64/

## Chart 5.1

### CONTRASTING NOMENCLATURE OF OGUN STATE HEALTH UNITS

| Analysis in Chapter V | Ogun State Ministry of Health |
|---|---|

#### Dispensary

| | |
|---|---|
| No physicians; maximum of 1 bed. Staffed by dispensary assistant. Minor ailments are seen; simple treatments are available. | No physicians; no beds. Staffed by dispensary assistant. Minor ailments are seen; simple treatments undertaken. |

#### Basic Health Clinic

| | |
|---|---|
| About 1 physician and 10 beds. Minor curative care and deliveries can be performed. | Staffed by general practioners. Up to 14 beds. Minor curative care and operations can be performed. |

#### Comprehensive Health Center

| | |
|---|---|
| 2-3 physicians; about 20 beds. Minor routine operations can be performed. Some are rural based. | Up to 30 beds. Rural based. Staffed by at least one public health/ community health physician. |

#### Maternity

No change in nomenclature.
No resident physicians;
about 7 beds. Staffed by
midwives and ward maids.

| Small Hospital | District Hospital |
|---|---|
| 4-6 physicians; 60-120 beds. | Serves 50,000 people; 40-60 beds; more than one physician; sophisticated equipment. |

| Large Hospital | General and State Hospitals |
|---|---|
| Services of generalist and specialist doctors, nurses, and health workers; sophisticated equipment. More than 150 beds. | Serves 100-250,000 people in semi-urban areas; 50-200 beds. More than 4 physicians. |

5.07    Sample. A detailed health facility survey instrument was used on a stratified random sample of 86 health facilities out of 445 facilities identified and surveyed in less detail by a complete census.  The collected data detailed staffing, equipment, cost, drugs, prices charged, etc.  (See Annex H).  The types of facilities selected and number of survey responses (totaling 68) retained are presented in Table 5.1.

## Table 5.1

### NUMBER OF SELECTED HEALTH FACILITIES (BY TYPE/OWNERSHIP) AND SURVEY RESPONSE RATES

| Type/Ownership | Number Contacted | Number that Responded |
|---|---|---|
| Private maternities | 11 | 9 |
| Private hospitals a/ | 13 | 8 |
| Private clinics | 11 | 6 |
| Local government dispensaries | 15 | 13 |
| Local government maternities | 16 | 15 |
| Public comprehensive health center | 2 | 2 |
| Private comprehensive health center | 1 | 1 |
| Basic health center | 6 | 4 |
| Public hospitals b/ | 10 | 9 |
| Teaching hospitals | 1 | 1 |
| TOTAL | 86 | 68 |

Source:  Ogun State Health Financing Study.

a/   Includes 2 maternity hospitals
b/   Includes 1 maternity hospital

## 1.    Financial Analysis of Public and Private Facilities, 1984-1986

5.08    A primary concern of policymakers is the financial sustainability of health care services.  Government budget constraints have jeopardized availability and quality of service in public facilities but little is known about the financial status of private institutions.  This section presents a descriptive analysis of recurrent costs, revenues, gross recurrent profit and cost recovery for both the public and private sector.  Small hospitals and maternities are the focus of discussion because there are a sufficient number of these types in the two sectors for comparison.

5.09    Cost Analysis of Public and Private Facilities.  Personnel costs account for the greatest proportion of recurrent costs in all facilities in Ogun State.  This is especially true for public facilities.  In 1986, personnel costs were 79 percent and 82 percent of public hospital and maternity recurrent costs respectively.  In private hospitals and maternities, personnel accounted for 57 percent and 60 percent of recurrent costs.  The breakdown of recurrent costs

between personnel and nonpersonnel components for comparable facilities is presented in Table 5.2. 65/

5.10    Drugs accounted for the largest share of nonpersonnel recurrent costs. In 1986, private hospitals and maternities spent more of their recurrent costs on drugs (26 percent and 21 percent) than public hospitals or maternities (16 percent and 10 percent). Once personnel and drug costs are subtracted, little is left in budgets for other nonpersonnel items such as maintenance, transport and supplies. Private hospitals and maternities spent 17 to 18 percent of their budgets on nonpersonnel, nondrug items. On average, public facilities spent 5 to 8 percent of their budgets on these items.

5.11    This spending pattern is consistent with observations of health facilities in many other developing countries where inputs complementary to personnel are lacking and drug supplies are inadequate. The pattern suggests that public health care services in Ogun State are run inefficiently and unable to maintain quality. The pattern of expenditures was similar in 1985 and 1986, except for public hospitals, which seemed to increase expenditure on drugs, presumably reflecting the introduction of the drug revolving fund. In 1985, public hospitals paid 11 percent of recurrent expenses for drugs; by 1986, this figure had risen to 16 percent. To balance this increase, the share of public hospital personnel spending decreased.

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65/    The survey provides some data on capital expenditures but contains no information on what activities were supported by these costs.

Table 5.2

DISTRIBUTION OF PERSONNEL AND NONPERSONNEL RECURRENT EXPENDITURE
IN PUBLIC AND PRIVATE HEALTH FACILITIES, 1985-1986 a/
(Operational Classification)

| Recurrent Cost Category | Small Hospital | | Maternity d/ | |
|---|---|---|---|---|
| | Public % | Private % | Public % | Private % |
| #Observations | 2 | 2 | 16 | 8 |
| Personnel | | | | |
| 1985 | 84 | 63 | 79 | 62 |
| 1986 | 79 | 57 | 82 | 60 |
| Nonpersonnel b/ (exc. drugs) | | | | |
| 1985 | 6 | 13 | 10 | 18 |
| 1986 | 5 | 17 | 8 | 18 |
| Drugs | | | | |
| 1985 | 11 | 24 | 11 | 20 |
| 1986 | 16 | 26 | 10 | 21 |
| TOTAL PERCENT | 100 | 100 | 100 | 100 |
| TOTAL NAIRA c/ | | | | |
| 1985 | 1,366,702 | 360,444 | 31,679 | 35,882 |
| (maximum) | (1,884,031) | (441,839) | (8,054,173) | (92,280) |
| 1986 | 1,488,049 | 414,433 | 26,202 | 32,087 |
| (maximum) | (2,120,880) | (458,965) | (7,973,952) | (92,247) |

Source: Based on data in Ogun State Health Financing Study (AHCS).

a/ Based on mean values for each facility type.
b/ Other supplies, transport, maintenance and repair.
c/ Maximum value in parenthesis.
d/ Salaries 1986 (maternities) in naira:

| | Public | Private |
|---|---|---|
| Average health worker | 3,_3 | 2,454 |
| Average non-health worker | 1,301 | 662 |

5.12     Revenue Analysis of Public and Private Facilities. Revenues come from essentially five main sources: (a) government, (b) grants, (c) loans, (d) cost recovery, and (e) miscellaneous. Government sources include the federal, state and local governments. Grants consist of affiliation and private grants. Cost-recovery revenues can be generated through mechanisms such as user fees, drug revolving funds and private insurance. Table 5.3 shows how these various sources of revenues supported public and private hospitals and maternities during 1985-86.66/

## Table 5.3

## SOURCE OF REVENUE FOR PUBLIC AND PRIVATE MATERNITIES

| Revenue Source | Public % | | Private % | |
|---|---|---|---|---|
| | 1985 | 1986 | 1985 | 1986 |
| Government | 79.0 | 74.0 | 0 | 0 |
| Grants | 0 | 2.3 | 11.0 | 9.7 |
| Loans | 0 | 0 | 0.85 | 0.43 |
| Cost recovery | 18.4 | 19.8 | 79.0 | 82.0 |
| Other | 2.6 | 3.5 | 8.6 | 7.4 |
| TOTAL | 100 | 100 | 100 | 100 |
| TOTAL NAIRA | 47,702 | 52,223 | 45,204 | 42,283 |
| (std. dev.) | (39,478) | (40,625) | (34,955) | (31,584) |

Source:  Calculations based on data in Ogun State Health Financing Study (AHCS).

5.13     In summary, public maternities get three-quarters of their funding from the government and generate only about 20 percent of their revenues through user fees.67/  This pattern of revenue sources remained stable during 1985-86. Private maternities depend much more heavily on user fees for their revenues (82 percent) and receive no support from the government. They obtain the remainder of their revenues from grants (10 percent) and miscellaneous sources (7 percent). This pattern of revenue sources has also been stable over the two-year period. However, in some instances private providers have experienced a 12 to 15 percent drop in the proportion of revenues generated from user fees. The data suggest that the reduction has been compensated for, in part, by an increase in loans.

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66/  Insufficient data were available to examine revenues for earlier years or for other facilities.

67/  Most facility administrators did not know whether government funds originated at the federal, state or local levels. The State Ministry of Health or the State Health Management Board is often responsible for channeling monies.

5.14     While public facilities rely very heavily on government funds for financial support, private facilities depend on user fees for most of their revenues and on grants and other contributions.  Facilities in both sectors lack a diverse portfolio of revenues.  Public facilities are at the mercy of government health allocations; private facilities depend on the continuing ability and willingness to pay of potential health care users.  As Nigeria's current economic situation reduces government budgets and household incomes, both public and private facilities could experience financial hardship.

5.15     Gross Recurrent Profit in Public and Private Maternities. 68/ Overall profitability varies tremendously in maternities, both public and private.  However, for the public sector, actual budget deficits may be hidden since the government finances any loss.  On average, the profit percentages were:

|  | 1985 (std. dev.) | 1986 (std. dev.) |
|---|---|---|
| Public maternity | +2.26 (40.11) | +40.27 (61.18) |
| Private maternity | +4.88 (36.15) | -13.50 (40.16) |

A key finding in this profit analysis is that, in 1985, private maternities earned on average small profits (only 5 percent).  In addition, private maternities were under increasing financial strain, incurring in 1986 average losses of 13.5 percent.  In light of the economic situation, this result is not surprising.  Devaluation of the naira increased the cost of many inputs.  High unemployment and general recession reduced the income of many households.  These constraints have intensified in recent years, suggesting that the financial strain on the private sector could be deepening.

5.16     Cost Recovery in Public and Private Facilities. 69/  Private facilities charge more than public facilities for almost all services.70/ Table 5.4 shows average patient fees for selected services at various facilities.  It is notable that lower-level facilities, public and private, do not necessarily have lower fees.  This may hurt the referral system because fee structures evidently do not discourage patients who want to bypass the primary care facilities.71/

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68/  This revenue analysis only pertains to public and private maternities because the revenue data were inadequate to reach general conclusions about other types of facility.

69/  The facility survey provides information on patient charges for selected services, revenues, and expenditures for drug revolving funds, and on revenues from user fees in general.

70/  The only exceptions are the clinic price for paracetamol and the hospital price for chest X-rays.

71/  Although vertical referral systems are the predominant organizational system in developing countries, the regular bypassing of the structure by patients results in inefficiencies and inequities

## Table 5.4

AVERAGE a/ CHARGE FOR VARIOUS SERVICES RENDERED
IN PUBLIC AND PRIVATE FACILITIES
(Naira)

| | Small Hospital | | Maternity | | Basic Health Clinic | |
|---|---|---|---|---|---|---|
| | Public | Private | Public | Private | Public | Private |
| Setting broken arm | 12.50 | 20.00 | 0.00 | 0.00 | 11.25 | 54.50 |
| Malaria treatment | 7.08 | 23.00 | 2.12 | 15.50 | 2.57 | 15.00 |
| Dressings | 1.75 | 3.88 | 3.13 | 30.25 | 3.10 | 5.70 |
| Room and board | 2.50 | 20.00 | 1.30 | 15.83 | 1.17 | 5.00 |
| Appendectomy | 23.33 | 187.50 | 0.00 | 50.00 | 32.50 | 0.00 |
| Basic delivery | 7.50 | 26.25 | 6.04 | 31.21 | 8.33 | 23.37 |
| Chest X-ray | 20.00 | 18.75 | 0.00 | 10.00 | 0.00 | 16.25 |
| Urinalysis | 1.50 | 17.50 | 0.00 | 5.00 | 1.00 | 12.50 |
| Blood count | 3.50 | 5.25 | 2.00 | 5.00 | 1.00 | 10.00 |
| Paracetamol | 1.00 | 9.00 | 0.37 | 2.97 | 0.58 | 0.07 |
| Immunization | 0.00 | 2.50 | 0.00 | 2.38 | 0.00 | 4.00 |

Source: Ogun State Health Financing Study (AHCS).

a/ Average service charges for those facilities which have a non-zero fee for the service.

5.17    Drug revolving funds are a popular cost-recovery mechanism because many facilities make profits from drug sales. The financial status of these funds is shown in Table 5.5. Private facilities especially were

(Mwabu, 1989). Reforms which could encourage the effectiveness of referral networks include clearly differentiated prices, with lower prices for primary care and for patients in secondary and tertiary level facilities who arrive through referral.

more likely to make money.72/ Drug availability offers a possible
explanation. In 1986, private facilities supplied at least 92 percent of
their patients with drugs compared with 73 co 87 percent for public
facilities. While large public hospitals, maternities and dispensaries in
general did not make profits from drug sales, the introduction in 1984 of a
drug revolving fund policy in Ogun State seemed to boost net reserves.

Table 5.5

AVERAGE DRUG PROFIT FOR HEALTH CARE FACILITIES

|  | 1985 | | 1986 | |
|---|---|---|---|---|
|  | % | std. dev. | % | std. dev. |
| Large hospital | | | | |
| Public | -10 | (0) | -28 | (0) |
| Small hospital | | | | |
| Public | -20 | (76) | 67 | (132) |
| Private | 22 | (11) | 22 | (14) |
| Comprehensive health center | | | | |
| Public | 26 | (0) | 4 | (0) |
| Private | 22 | (25) | 31 | (11) |
| Basic health center | | | | |
| Public | -25 | (49) | 125 | (276) |
| Private | 268 | (344) | 116 | (188) |
| Maternities | | | | |
| Public | -15 | (50) | -4 | (86) |
| Private | 27 | (97) | 10 | (80) |
| Dispensary | | | | |
| Public | -63 | (45) | -51 | (48) |

Source:  Calculations based on data in Ogun State Health Financing Study,
AHCS.

5.18     The mixed success of cost-recovery schemes has implications for
policies which promote such schemes for the public sector and recommend
expanding private sector activities as they currently exist. Many private
owners note that patients are delaying or avoiding treatment altogether due
to inability to pay, and many private facilities are not reaching moderate

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72/  This was true especially in 1985. These results are ambiguous since
     there was a large degree of variability. Drug revolving funds may
     have a strong profit earning potential but their success is not
     guaranteed. If private facilities are more successful at generating
     profits from drug revolving funds, the reasons for their relative
     success should be researched.

utilization levels of 800 visits per health worker per year.73/
Moreover, profitability of private maternities has been declining even to
the point of incurring losses. Field observations indicate that although
the private sector is growing, many facilities are beginning to experience
financial strain due to the ongoing economic crisis. Thus the continued
rapid expansion of the private sector is uncertain. Before designing new
policies, decisionmakers should ascertain the most recent financial status
of private owners. If losses persist, they will need to identify reasons
for these losses, and to determine the short- and long-run effects of these
losses on private sector growth. These issues are examined in depth in
Part C.

5.19    Efficiency. Inefficiency may result from poor engineering (that
is, improper input combinations or underuse of resources) or noneconomical
use of inputs (such as overuse of expensive inputs). The statistical
analysis of efficiency in Part A.2 of this chapter (page 69) examines both
aspects. At this juncture, a general description of the potential
inefficiency can be provided. However, the data are only suggestive
because a crude proxy for output is used, namely, visits per health worker,
which does not distinguish between the technical and economic causes of
inefficiency. Nonetheless, although the data presented in Table 5.6 cannot
pinpoint inefficiency sources at the facility level, they do suggest that
several provider groups have efficiency problems. Strikingly, a majority
of facilities fall below a moderate level of efficiency (800 visits per
health worker per year).

5.20    Facilities that fall below the efficiency norm are usually very
large and have large staffs whose utilization levels are relatively low.
Of all facilities, public and private, only dispensaries are most likely to
meet minimum acceptable efficiency levels. These results are surprising
since private facilities are assumed to be more cost-conscious. With
respect to inpatient services, occupancy rates for small public and private
hospitals of 40 percent and 57 percent, respectively, also suggest
substantial underutilization.

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73/  This was the norm selected for a moderate level of acceptable
     efficiency, based on a qualitative assessment of observed facility
     activity levels. The statistical analyses used a minimum acceptable
     efficiency level of 600 visits per health worker per year.

Table 5.6

EFFICIENCY AS PROXIED BY
VISITS PER HEALTH WORKER (HW) AND FACILITY CHARACTERISTICS

|  | Low 0-799 Visits/HW | Medium 800-2000 Visits/HW | High 2001 + Visits/HW |
|---|---|---|---|
| Number of Facilities | 27 | 14 | 5 |
| Types of facilities |  |  |  |
| Small hospital | 2 | 1 | 0 |
| Large hospital | 1 | 0 | 0 |
| Comprehensive center | 0 | 1 | 0 |
| Maternity | 13 | 4 | 2 |
| Basic health center | 8 | 3 | 1 |
| Dispensary | 3 | 5 | 2 |
| Public | 19 | 12 | 3 |
| Private | 8 | 2 | 2 |
| Average number of visits | 6,399 | 15,101 | 8,918 |
| (Maximum) | (11,917) | (25,513) | (8,951) |
| Average number of HW | 21 | 11 | 2 |
| (Maximum) | (41) | (15) | (2) |

Source: Calculations based on data in Ogun State Health Financing Study (AHCS).

5.21    These conclusions must be interpreted with caution. First, descriptive statistics describe the average behavior of different provider types. Case study analyses of specific facilities may yield very different results. Unfortunately, the sample size was too small to conduct a detailed micro level analysis. Second, the quality of the data is often poor. Based on field experience, the data are likely to contain errors that are not readily apparent. Financial information systems in Nigeria are rudimentary, yet with modest modification, the current data collection system could provide the fundamental information needed by policymakers. (See Annex I.) However, they do provide the information for carrying out a basic comparative analysis of the operational status of public and private facilities, a task which has not before been possible.74/

74/    As Abel-Smith (1989) points out, "There is a danger in assuming, as the basis of policy, that private hospitals (almost by definition) are bound to be more efficient than public hospitals."

## 2. Statistical Analysis of Efficiency in Public and Private Facilities

5.22    This section will (a) assess the technical and economic efficiency of health care facilities in general; (b) compare the efficiency of public and private facilities;75/ and (c) analyze the cost structure of health care facilities with respect to marginal and average costs, the additional cost due to inefficiency, and economies of scale and scope.

5.23    Technical and economic efficiency are examined using a frontier production function to describe the maximum levels of health services possible with given combinations of personnel and nonpersonnel health services. Measures of the physical productivity of health and non-health workers are compared with their respective wages to determine whether cost-minimizing staffing patterns are in effect. Differences between public and private facilities are explored. The costs of inefficiency and the general cost structure of health care service provisions are determined by estimating a short-run cost function. From these results, marginal costs, average costs and economies of scope and scale are calculated. The model and the cost function estimates are detailed in Annex J.

5.24    The data set is drawn from a heterogeneous group of nonhospital facilities whose production and cost functions may differ dramatically.76/ Although these facilities offer a wide range of services, the estimations can only focus on two aggregate output measures:

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75/ Since personnel cost is the largest component of total costs, the efficiency analysis focuses on staffing patterns, namely the mix of health and non-health workers.

76/ General information on facility location, ownership, type of facility, services offered, usable equipment and staffing patterns was collected for all 445 modern health care facilities in Ogun State. Another survey of 86 facilities was conducted to collect more detailed information on utilization (inpatient and outpatient), target populations, personnel and nonpersonnel costs for the period 1981-86, sources of revenue, selected service charges, measures of cost recovery and availability of drugs. These facilities were chosen through stratified random sampling. Of these 86 facilities, 68 were fully responsive.

inpatient admissions and outpatient visits.77/ Table 5.7 presents the composition of this small study group.78/

## Table 5.7

### CHARACTERISTICS OF PRIMARY AND SECONDARY FACILITIES: OWNERSHIP AND EFFICIENCY

| Operational Classification | <600 visits/HW/yr | >600 visits/HW/yr | Total |
|---|---|---|---|
| Comprehensive health center | | | |
| Public | 0 | 1 | 1 |
| Private | 0 | 0 | 0 |
| Basic health center | | | |
| Public | 4 | 6 | 10 |
| Private | 1 | 1 | 2 |
| Maternity | | | |
| Public | 5 | 5 | 10 |
| Private | 7 | 2 | 9 |
| Dispensary | | | |
| Public | 1 | 9 | 10 |
| Private | 0 | 0 | 0 |
| TOTAL | 18 | 24 | 42 |
| Public | 10 | 21 | 31 |
| Private | 8 | 3 | 11 |

Source: Calculations based on data in Ogun State Health Financing Study (AHCS).

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77/  This is the largest subgroup of facilities for which services can be reasonably lumped together into only two output measures. Comprehensive health centers, primary health care clinics, health clinics, maternities and dispensaries generally provide the same type of outpatient primary health care and the same type of inpatient care, consisting mostly of deliveries and minor surgery. The data set includes 61 observations for the nonhospital sector. After cleaning the data, 42 nonhospital observations remain. Several observations had to be dropped from the sample because of missing data.

78/  The group is small, especially for estimating the frontier production and cost functions which include only those facilities with more than the minimum acceptable level of 600 visits per health worker per year (24 observations). This means that there is the potential for omitted variable bias since the sample size is not large enough to fully incorporate all variables that affect production or expenditures. This selection process is discussed in more detail in Annex G.

## Cost Analysis Results

5.25      Table 5.8 and Figures 5.1 and 5.2 reveal relevant features of primary and secondary health care facility service costs.79/   As expected, inpatient services are more costly to provide (by 100 percent) than outpatient visits in terms of marginal and average costs.  Inpatient average costs are more than double outpatient average costs.  As shown in Figures 5.1 and 5.2, marginal costs are less than average costs, indicating that facilities are generally operating on the downward portion of their average cost curves.  This is especially true for admissions.  Although also downward sloping, the marginal and average costs curves for visits are somewhat flatter.  These results are consistent with the product-specific scale measures which indicate increasing returns to scale for admissions and nearly constant returns to scale for visits.

### Table 5.8

ESTIMATES OF COST ANALYSIS MEASURES a/
(Naira)

|  | Admissions | Visits |
|---|---|---|
| Marginal cost | 6.85 | 4.82 |
| Average incremental cost | 18.05 | 3.73 |

a/ Details of calculations are shown in Annex J.

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79/   These results are averages; facilities show wide variability in results.  Because only three private facilities met the production frontier criteria, the following comments pertain primarily to public facilities.

FIGURE 5.1
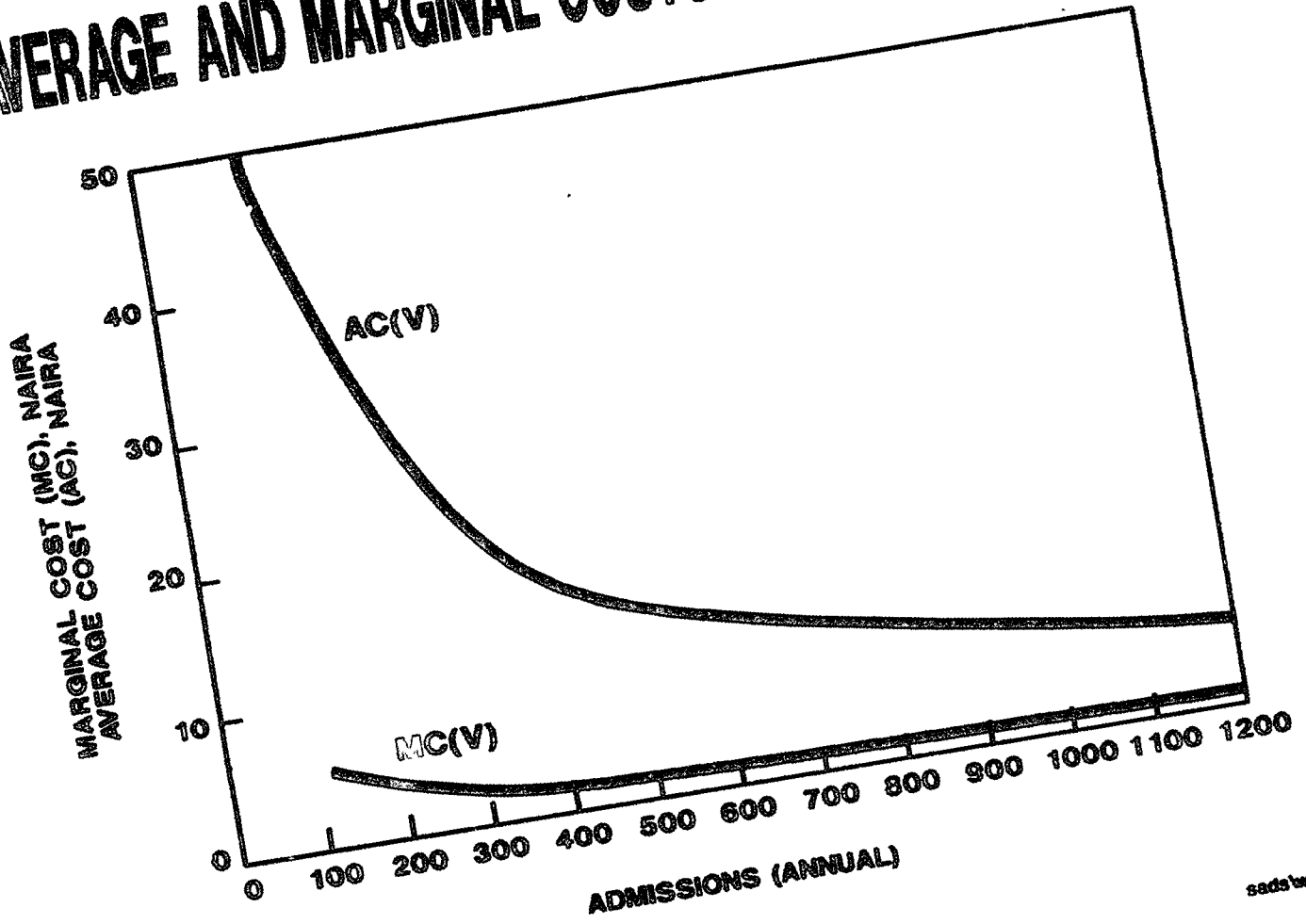
AVERAGE AND MARGINAL COSTS: OUTPATIENT VISITS
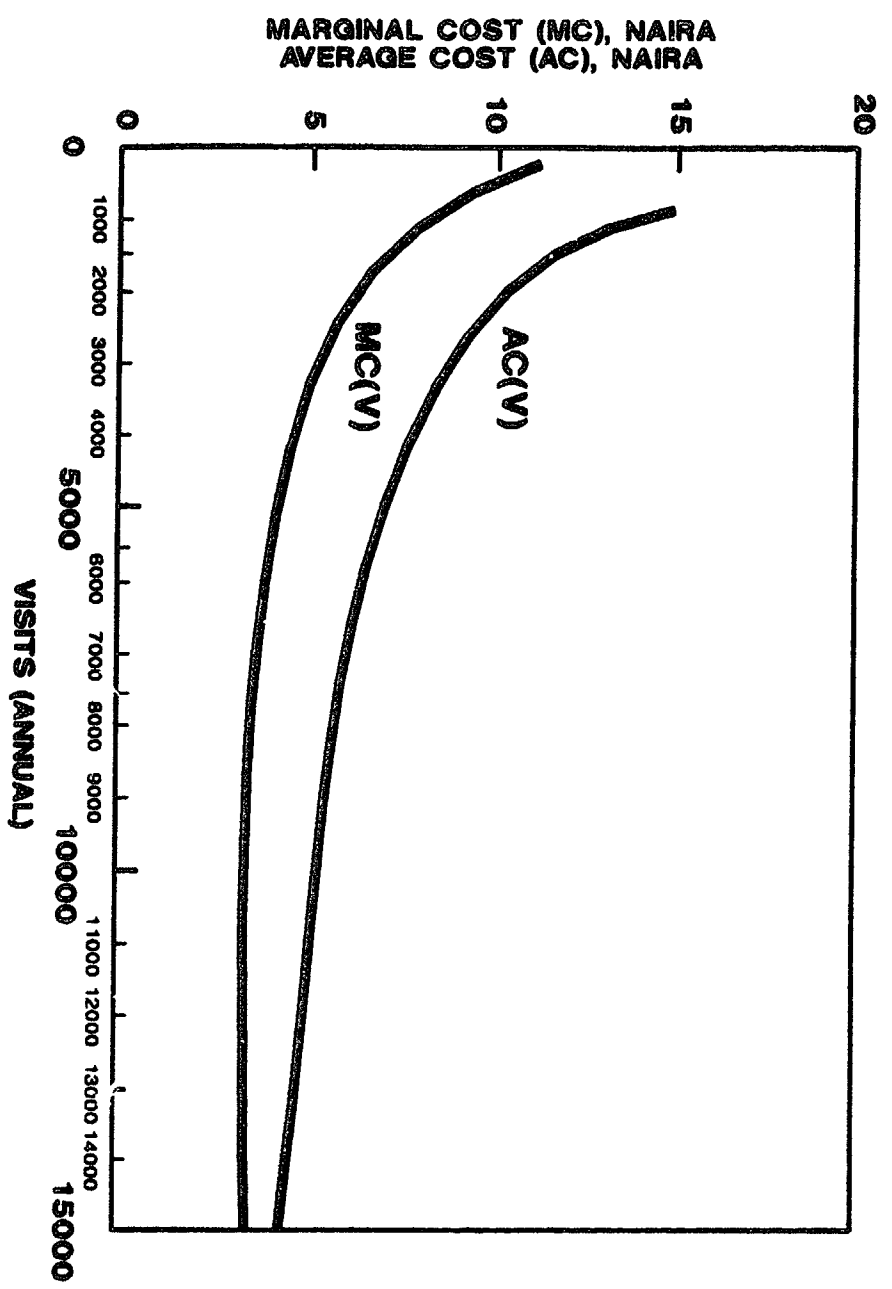
FIGURE 5.2

# AVERAGE AND MARGINAL COSTS: INPATIENT ADMISSIONS

sadstw47155b

5.26     Because inpatient service facilities are apparently operating under capacity, high fixed costs are distributed over relatively few admissions. Low bed occupancy rates are consistent with these trends in average costs. A likely explanation for low utilization levels is lack of complementary inputs. Increased availability of drugs and other supplies would shift average and marginal cost curves upwards, but utilization would also increase such that the minimum portion of the average cost curve could be reached.

5.27     Since outpatient services appear to be less affected by undercapacity, one might consider the extent to which some of the fixed inputs such as personnel can be transferred from inpatient to outpatient care. The fungibility of various types of health workers should be fully explored. Allocative efficiency analysis indicates that public facilities are not using cost-minimizing combinations of health workers and support staff; the public sector appears to employ too many support staff relative to health workers. A surprising result in the private sector was that most private providers, like the public sector, do not achieve the minimum acceptable technical efficiency of 600 visits per year per health worker.

5.28     Finally, the economies of scope measure shows that under existing conditions there are no sizable advantages to combining inpatient and outpatient services. By offering these services together, overall expenditures remain clearly constant or increase slightly (10 percent). Combining an underutilized inpatient department with an active outpatient department might raise overall costs.

5.29     These results must be qualified, because the data upon which the analyses were performed were often incomplete and suspect and the data set used for the statistical analysis was extremely small. An important indirect recommendation from this cost analysis is that financial information systems at the facility level must be vastly improved; financial data need to be coordinated with appropriate and adequate measures of health care quality, facility utilization, and health status. Without such systems, the ability to examine, recommend, implement, and evaluate strategies to improve resource allocation within the health sector is limited. (See Annex I for a summary of basic data requirements of a management information system.)

B.     Household Demand for Outpatient Health Services

5.30     People's need and desire for health services differ across geographic areas, as do their willingness and ability to pay. Demand analysis answers questions about the causes of demand for public sector health services relative to the demand for other types of providers (e.g., private, mission, traditional).80/ Health planners can use information

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80/     Too many things that affect health care usage are always changing in any population for the effect of any observed price changes to be directly identified correctly, even when they can be observed. Realizing this, social scientists and policymakers have looked to well-designed demand analyses to help predict how various changes, such as raising fees at public facilities, will affect health care usage by specific income groups. A more technical discussion of demand estimation is presented in Annex M, and the economic and statistical models and estimation procedure used for this analysis

on local health care preferences to design fee schedules and to target price changes, exemptions and subsidies so as to protect the poor from higher prices. Demand studies also allow policymakers to predict the likely demand for insurance (risk-sharing) coverage and the need for government involvement. This part of Chapter V uses household survey data to analyze the relationships in health care usage and its determinants, and to estimate actual usage patterns.

### 1. Surveys and Samples Selected

5.31     This study uses household survey data to analyze the relationships among health care usage and its determinants and to estimate actual usage patterns (see Form C at Annex K). One hundred patients were randomly selected from each facility. Interviews were carried out at their homes within the next two weeks. To obtain a more random sample of other households near the facilities, interviews were also conducted with neighbors of two of each five interviewed patient households. Data for 1,763 non-pregnant adults who had recently been ill are used in the demand analysis.81/

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are presented in Annex N.

81/  Some 6,800 households were theoretically available from 68 facilities, but some of the rural clinics could not supply 100 names during the observation period and some addresses turned out to be nonexistent. In total, 3,380 household interviews of patient households were finally obtained. The neighbors sample added 1,360 "nonpatient" households to the total sample. Thus, a total of about 4,898 household interviews with 22,074 individuals were obtained. The demand analysis on the adult outpatient sample was not performed on individuals less than 16 years old and those who did not report an illness in the last 4 weeks, resulting in a sample of size 2,264. Also deleted were all individuals whose reported illness could not reasonably be considered an outpatient illness. The specific reported illnesses for those individuals included in the sample were: fever, cough, stomach trouble, diarrhea, weakness, headache, burns, bites and stings, poison and falls. The number of individuals reporting one of these illnesses was 1,807. Finally, deletion of observations due to missing values for independent variables resulted in a final analysis sample of 1,763 individuals.

## 2. The Socioeconomic Situation in Ogun State 82/

5.32      The samples analyzed were mostly urban (57 percent). Nearly half (46 percent) of the population was aged 10 or younger; only 9 percent was above age 40.83/  Around half (49 percent) of the sample population had no formal education, while less than one quarter (23 percent) had secondary education. More than half (56 percent) were too old or too young to work (they formed the dependent population, in other words). The composition of the employed sample was: 32 percent traders, 16 percent farmers, 14 percent professionals, 11 percent office workers, 9 percent teachers, 7 percent artisans, 4 percent applicants, and 7 percent in other categories. Christians outnumbered Muslims (53 percent vs. 46 percent). Around half (52 percent) of household members were employed. Earnings were low.  Some 79 percent of those working earned less than N200 per month, while 14 percent earned N401 to N600, and 3 percent earned N601 or more.84/

5.33      Other socioeconomic indicators reveal that sanitary and public health conditions in Ogun State are somewhat deficient.  Only about one quarter (27 percent) of the sample had piped water in their home; 43 percent used water from unpiped sources such as ponds, springs, tankers and open rivers.  Around 16 percent traveled over 500 feet from home for water. About 24 percent of the sample used flush toilets; 63 percent used pit latrines.  Almost three quarters (73 percent) of households had none of the "comfort/leisure" items listed in the survey: only 19 percent had radios; 2 percent had televisions; 1 percent had stereo sets; and 5 percent had one or more other items (video, refrigerator, or other).  One-third (33 percent) of the households owned some land.

5.34      Health Status.85/  As shown in Table 5.9, the sample was divided into five household income (earnings) classes.  Somewhat surprisingly, self-reported health status classifications differ very

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82/  This section of the report is largely based on information provided by African Health Consultancy Services (AHCS), in Report III of the Ogun State Health Financing Study, dated March 1989. The AHCS report was based on a sample of 4,700 households, including 3381 "patient" and 1359 "nonpatient" households. (These differ slightly but not significantly from those we obtained in evaluating the data set). Some of the numbers do not come from that report but are based on direct results from the data set.

83/  The average age was 19.9 years; the median age was 18 years.

84/  At the time of the survey, N4 = US$1; per capita income in 1987 was estimated by the World Bank as US$370.  But using earnings alone to measure income or wealth levels in developing countries can be misleading. Another indication of wealth is housing conditions and ownership patterns. The sample shows that 37% of individuals lived in a single room, 34% in a room plus parlor, and 37% in other housing configurations. About half of the sample of respondents lived in housing owned by other household members.

85/  Most of the information reported in this section comes from direct data analysis, rather than the AHCS report.

little by income group. The most obvious differences occur in the poorest
group. Although only 1.7 percent of the poorest quintile said they were in
poor health, this figure was still almost double the percentage for any
other income group. The poorest group also reported a much smaller
percentage in excellent health (1.4 percent, as compared to the 4.3 percent
sample average and 5.5 percent reported by the N=51-100 monthly earnings
group).

5.35    Surprisingly, many people (29 percent) in the highest income
group said they were in "fair" health (the sample average is 18 percent; 20
percent for the lowest earnings group). Much as expected, 80 percent of
the highest income group (but only 66 percent of the lowest) who report
illness sought help at a private or public facility. The other three
income groups are all near the mean value of 71 percent seeking health
care. The highest income group also reported a higher fraction of its
members in fair or poor health (30 percent) than any other income group
(the sample average is 19 percent; 21.9 percent for the lowest earnings
class).

### Table 5.9

### HEALTH STATUS OF INCOME GROUPS

| Household Earnings (naira/month) | Health Status Reported | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Excellent | | Good | | Fair | | Poor | |
| | N | % | N | % | N | % | N | % |
| 0-25 | 36 | (1.4) | 1,998 | (75.6) | 532 | (20.2) | 45 | (1.7) |
| 26-50 | 175 | (3.6) | 3,776 | (76.6) | 901 | (18.3) | 37 | (0.8) |
| 51-100 | 349 | (5.5) | 4,850 | (75.7) | 972 | (15.2) | 68 | (1.1) |
| 101-200 | 209 | (5.1) | 3,066 | (75.1) | 690 | (17.0) | 34 | (0.8) |
| 201+ | 71 | (4.0) | 1,121 | (63.7) | 518 | (29.1) | 17 | (1.0) |
| TOTAL | 841 | (4.3) | 14,801 | (74.7) | 3,608 | (18.2) | 201 | (1.0) |

Source:    Calculations based on data in the Ogun State Health Financing Study
(AHCS).

5.36    The most important indicator of differences in health care use
by income groups is the extent to which those who are ill seek outside
care. Table 5.10 shows care by income groups.

Table 5.10

USE OF HEALTH CARE BY INCOME GROUP

| Monthly Income | Use Public or Private Facilities | No Consultation | Total |
|---|---|---|---|
| Lowest income group (N0-25) | | | |
| Number | 401 | 208 | 609 |
| Percentage | (66) | (34) | (14) |
| Second income group (N25-50) | | | |
| Number | 790 | 298 | 1,088 |
| Percentage | (73) | (27) | (24) |
| Third income group (N51-100) | | | |
| Number | 1,020 | 425 | 1,445 |
| Percentage | (71) | (29) | (32) |
| Fourth income group (N101-200) | | | |
| Number | 667 | 269 | 936 |
| Percentage | (71) | (29) | (21) |
| Highest income group (N201 or higher) | | | |
| Number | 335 | 86 | 421 |
| Percentage | (80) | (20) | (9) |
| TOTAL | 3,213 | 1,286 | 4,499 a/ |
| | (71) | (29) | (100) |

a/    These numbers are based on the total sample of 111 people, including those under age 16 and those who were pregnant. For this reason the sample size is larger than that for the profit analysis sample, and the percentages choosing each option vary slightly (for example 29% chose "no consultation" versus 31% in the choice-based sample).

5.37    The great majority of the lowest income groups seek help from public health facilities while the highest income group makes much greater use of private facilities. Table 5.11 shows the first source of care by income group. The most notable differences are between the poorest and richest groups:

Where people go for medical help, by income quintile (percent)

| | Highest | Lowest |
|---|---|---|
| Public hospitals | 27 | 21 |
| Private hospitals | 24 | 5 |
| Public health clinics | 22 | 46 |
| Private health clinics | 8 | 7 |

This does not mean that the more wealthy groups avoid public facilities -- 53 percent of the highest income group who used a facility sought help at a ;ublic clinic, a public maternity, or a public hospital.

Table 5.11

SOURCE OF HEALTH CARE BY INCOME GROUP

| Income Group | Pharmacy | Tradi- tional Healer | Spiri- tualist | Government Maternity | Private Maternity | Public Health Clinic | Private Health Clinic | Comprehensive Government Health Center | Public Hospital | Private Hospital | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Lowest** | | | | | | | | | | | |
| –Number | 16 | 12 | 2 | 19 | 8 | 162 | 24 | 16 | 72 | 19 | N=349 |
| –Percent | 5% | 3% | 1% | 6% | 2% | 46% | 70% | 40% | 21% | 6% | (13%) |
| **Second Lowest** | | | | | | | | | | | |
| –Number | 26 | 28 | 4 | 53 | 31 | 214 | 41 | 58 | 162 | 56 | N=673 |
| –Percent | 4% | 4% | 1% | 8% | 5% | 32% | 6% | 9% | 24% | 8% | (24%) |
| **Third Lowest** | | | | | | | | | | | |
| –Number | 36 | 27 | 6 | 88 | 45 | 194 | 63 | 56 | 277 | 93 | N=885 |
| –Percent | 4% | 3% | 1% | 10% | 5% | 22% | 7% | 6% | 31% | 10% | (32%) |
| **Fourth Lowest** | | | | | | | | | | | |
| –Number | 28 | 20 | 3 | 58 | 21 | 114 | 46 | 11 | 176 | 96 | N=573 |
| –Percent | 5% | 3% | 1% | 10% | 4% | 20% | 8% | 2% | 31% | 17% | (21%) |
| **Highest** | | | | | | | | | | | |
| –Number | 22 | 10 | 4 | 12 | 4 | 63 | 24 | 1 | 78 | 67 | N=285 |
| –Percent | 8% | 4% | 1% | 4% | 1% | 22% | 8% | 0% | 27% | 24% | (10%) |
| **TOTAL** | | | | | | | | | | | |
| –Number | 128 | 97 | 19 | 230 | 109 | 747 | 198 | 141 | 765 | 331 | N=2765 a/ |
| –Percent | (5%) | (4%) | (1%) | (8%) | (4%) | (27%) | (7%) | (5%) | (28%) | (12%) | 100.00 |

Source: Calculations based on Ogun State Health Financing Study.

a/ The difference between the total sample using health care (including children and pregnant women) of 3,213 (Table 5.10) and 2,765 is made up of 448 observations having incomplete data, in that details of source of care were not provided.

5.38    If a person uses a different facility from the one he first chose, where will he go? Only 11 percent (317 of the 2,765) who use a source listed in Table 5.11 for a first consultation use a second source other than a pharmacy. The patterns for the choice of a second consultation for the poorest and richest groups are strikingly similar to the one presented in para 5.45. Of those going to sources other than a pharmacy, almost half of the poor but only around one-quarter of the richest go to a public hospital. The groups go about equally to private hospitals (around 20 percent), and to traditional healers (around 15 percent) (see Annex L).

## (a) Demand Analysis

5.39     The information presented above on health status or usage by income groups is informative, but not sufficient for policy purposes. For example, policymakers need to know why the highest income group exhibits high formal care usage. Do the poorest and the richest groups have similar illness patterns? Do the richest groups live closer to hospitals than the poor? Do the rich simply have a greater taste for formal care? To answer these questions, policymakers need a full model that considers all the elements that determine health usage (and thus expenditures). An appropriately estimated demand model will include (a) health care prices; (b) alternative care prices; (c) the ill person's income; (d) age; and (e) education level; (f) the seriousness of the illness; and (g) the quality of care available at each facility accessible to the ill person. It will separate out the above variables so that changes in the variable can be evaluated from a policy standpoint.86/

5.40     Given the current situation of underutilization of facilities, usage is an issue of great concern to Nigerian policymakers. For the actual demand estimates, the choice-based methodology was used to weight the choice-based (chose to use a facility) and community-based (neighborhood) samples to create a combined representative sample of potential users with access to a facility.87/ This procedure utilized the extensive information on sick people obtained from the facility-related, choice-based survey, but allowed the total sample to be weighted in a manner that makes the results representative of the population of potential facility users. Policymakers who are concerned about current and probable usage of existing facilities can use these conclusions for guidance in facility use and pricing decisions.88/

5.41     The dependent variable consisted of individual's choices among three methods of treatment: (a) no consultation; (b) public facility;

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86/  See footnote 80/.

87/  The original respondents were selected because a household member had obtained care at a sampled facility. Interviewers selected choice-based households by meeting patients at health facilities and making a follow-up interview visit. The selection of facilities and patients was random. Making an appointment for a follow-up visit allowed people to prepare better for the time and effort involved in providing detailed answers to the lengthy questionnaire, guaranteeing a large number of completed interviews for health service users. Neighbors were also interviewed. In taking illness histories, respondents were asked "What did you do first--, second--, third--," so that they had at least three opportunities to report using various facilities. No evidence suggests that sampling households near a facility (who may or may not have used that facility) does not provide a random sample of possible users.

88/  However, the conclusions cannot be extended with full confidence to health care usage in general by the total population, including those who live in areas relatively inaccessible to the facilities.

(c) private facility.89/ The frequencies for the dependent variable in the analysis sample were as follows:

| Sample: | Choice-based | Community-based |
|---|---|---|
| No consultation/self treatment | .3153 | .5155 |
| Public facility | .4943 | .3422 |
| Private facility | .1904 | .1423 |

5.42     The empirical model employed assumes that choice of health care is a function of:

(a)   price of the care
(b)   quality of the care
(c)   sex of the patient
(d)   education of the patient
(e)   wealth (assets) of the household
(f)   income of the household (lowest 20 percent)
(g)   urban residence
(h)   symptoms of the illness
(i)   seriousness of the illness

Price and quality depend on the health care chosen (conditional variables); other variables are specific to the household (or individual patient) and do not vary across health care choices (unconditional variables). A discussion of the actual specification of these variables is in Annex O.

(b)   Estimation Results

5.43     Table 5.12 presents results for the estimations. The results strongly support the views that (a) price affects health care choice but has an impact that is small in magnitude; (b) quality as measured has a large impact on health care choices; and (c) higher prices can be offset by higher quality.

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89/   Individuals were categorized depending on their answers to a series of questions. The first question was "Have you been ill in the past four weeks?" Those who were not sick were not asked follow-up questions. Those who were sick in the last four weeks were asked what they did first, second, and third to treat the illness. The data set contains answers to the "do first" and "do second" questions. The dependent variable was defined as "no consultation" only if they answered self-treatment to both questions. The dependent variable was defined as "public facility" if they went to a public facility first or if they went to a public facility second after responding self-treatment to what they did first. The dependent variable was defined as "private facility" in a similar manner. If respondent answers indicated a combination of public and private facility use, what they did first was used to define the dependent variable. About 96% of the time this algorithm for defining the dependent variable resulted in using the answer to the "do first" question. Only 731 of the 3,186 who pursued a first source (which includes self-medication) answered that they pursued a second course of action for treatment of the illness other than a pharmacist.

Table 5.12

ESTIMATION RESULTS OF USAGE

| Variable | Public versus No Consultation | | Private versus No Consultation | | Public versus Private | |
|---|---|---|---|---|---|---|
| | Coefficient | "t" | Coefficient | "t" | Coefficient | "t" |
| **Conditional** | | | | | | |
| Price | -.029 | -1.68 | -.029 | -1.68 | -.029 | -1.68 |
| Quality: | | | | | | |
| (a) Expenditure on care per person in population served | .029 | 1.56 | .029 | 1.56 | .029 | 1.56 |
| (b) Drug availability (percentage of time available) | .015 | 3.95 | .015 | 3.95 | .015 | 3.95 |
| (c) Physical condition of facility index 1 = good 2 = fair 3 = poor | -.2?7 | -4.54 | -.227 | -4.54 | -.227 | -4.54 |
| **Unconditional** | | | | | | |
| Education of ill person | .022 | 0.83 | .022 | 1.97 | -.001 | -0.03 |
| Sex of ill person (male = 1; female = 2) | -.001 | -0.01 | .064 | 1.70 | -.064 | -0.91 |
| Own a vehicle | .197 | 2.14 | .112 | 2.67 | .084 | 1.09 |
| Lowest income quintile | .163 | 1.47 | -.004 | -0.08 | .166 | 1.76 |
| Urban residence | .010 | 0.09 | .183 | 2.90 | -.174 | -1.65 |
| Days of reduced activity | .028 | 3.33 | .013 | 3.54 | .015 | 1.94 |
| Stomach or diarrhea symptoms | .557 | 4.27 | .243 | 4.34 | .314 | 2.59 |
| Constant | -1.679 | -4.17 | -1.579 | -4.38 | -1.00 | -0.51 |

Source:  Multinomial probit estimation results, based on data in Ogun State Health Financing Study (AHCS).

5.44      Raising prices with constant quality will reduce usage; but spending the increased funds to improve quality may even increase usage. Given equal prices and identical tastes, people prefer health facilities that have (a) higher per capita spending on care; (b) higher drug availability; and (c) a relatively good physical condition.90/  Efforts

90/  The price of the specific type of care is statistically significant at the 10% level (t=-1.68) and has the expected negative sign.  As the price of a care option increases, if the quality of care statistically is held constant, the likelihood of that option being

to include a price of time in the model are detailed in Annex O. The price of time variables were not found to be statistically significant. The strength of the results on the money price and quality variables is reassuring. In all estimates and with various combinations of variables other than quality and price included, the price and quality variables almost always had the expected signs and were highly significant statistically. In addition, the results indicate that the lowest income quintile is more likely to choose public care than other income groups but behaves much like the other income groups in choosing between private care and no use of formal care (self treatment).91/

chosen will decrease. Thus, higher prices will reduce usage, as expected. But because the profit relationships are inherently nonlinear, the magnitude of the effect can only be simulated by estimating the predicted usage of each type of care for different values of price. Two of the quality of care variables are highly significant; the third is significant at a low level (expenditures per capita for the population served only has a t value of 1.56). All have the expected signs. The multinomial profit model effectively estimates parameters of the utility function for each outcome. The parameters on the conditional variables are the same for each outcome and those on the non-conditional variables differ. Because price and facility characteristics (total expenditure per person served and facility physical condition) obviously are not relevant variables for the "no consultation" choice, we use zero for the value of each of these variables when "no consultation" is chosen. This in effect causes these factors to be omitted ("zeroed out") in the utility equation for the "no consultation" choice (i.e., the amount of utility one receives from "self treatment" is not affected by the physical characteristics of facilities). This is the effective way to handle the impacts of such nonexistent factors as the physical condition of the facility which provides the "no consultation" choice.

91/ When fees are introduced, even if health service usage is not greatly reduced, financial burdens on the poor will be increased. Practical methods to identify the poor ·· r.s to exempt them from fees or to provide them subsidies do exis\. Unless such means tests are utilized and the poor effectively protected, the social cost could be large. Possible approaches to identification of the poor used in developing countries include certification by citizen committees or local officials. Over time, as tax records and other information become more reliable, more precise methods of identification of the poor should become available. Another possibility which would not necessarily require such good information is a self-declaration system with specific income and wealth standards. Subsidization could include charging small amounts or nothing for "no-frills" levels of room and board in hospitals but full cost for less crowded rooms, better food, etc.; or subsidizing care for specific population groups (for example, infants and pregnant women) or regions of the country.

5.45     Tastes and preferences of individual clients are surprisingly strong statistically in their effect on choices. The wealthy (those who own a vehicle) seek the most medical care. Urban residents, females, and the more highly educated prefer private medical care. Those with (a) stomach or diarrhea problems, and (b) more severe ailments, tend to seek treatment at public facilities, assuming equal prices and quality.

5.46     These results suggest that if public facilities offered private sector levels of both drug availability and physical conditions (assuming constant public and private sector spending per patient), they could raise outpatient prices to the level of the private sector (an 87 percent increase) and still increase usage. Some current nonusers would be drawn to the public sector, and around half of present private care users would also switch. This interpretation of the quality/price trade-off obviously oversimplifies the problems that would be encountered in an attempt to actually make such changes. Yet the results strongly suggest that if revenues from higher prices at public facilities were used to increase care quality, usage of these facilities (and of modern formal care in general) might well increase.

5.47     While this part of the analysis has explored how change affects an individual, it does not provide the total picture. By combining household responses and facility costs to reach estimates of aggregate costs and aggregate revenue, a comparison of alternative policy formulations can be made. These combinations of options for a program of cost recovery in the health sector are explored in depth below.

## C.     Health Care Cost-Recovery Simulations

5.48     "Cost recovery" has been applied to many sorts of public sector activities, from electricity and water supply to health care. At the most basic level, cost recovery represents a government effort to have the beneficiaries of a government good or service contribute toward its costs by taxation or by imposing prices for the good or service.

5.49     One of the main conclusions of the analysis in this report is that raising prices for public health care services could increase the number and frequency of users and also total revenue. That conclusion is shared and supported by the results outlined in this chapter. This apparently paradoxical conclusion (cost savings from higher prices) will be true only if price rises are eventually accompanied by higher quality service. Better service means that health care facilities must have more medical supplies, more drugs, and a well-trained and committed workforce. Another important conclusion is that management capability needs to be significantly strengthened before an extensive cost-recovery program is attempted.

5.50     Status of Cost Recovery. The Nigerian National Health Policy, launched in October 1988, states:

> As a general policy, users shall pay for curative services, but preventive services shall be subsidized. Generally, public assistance shall be provided to the socially and economically disadvantaged segments of the population.92/

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92/  National Health Policy and Strategy to Achieve Health for All Nigerians, Federal Ministry of Health, October 1988, p. 49.

Despite these aims, cost recovery from users of curative government health care facilities is not yet widespread or systematic in Nigeria and is similar to levels observed in other African countries. The extent of cost recovery in the public sector in Ogun State is not widespread and is sporadic rather than systemic.93/

5.51    A low level of cost recovery is a .:idespread phenomenon in Africa, where cost-recovery ratios (see Table 5.13) are typically below 8.0 percent.94/  In grappling with cost recovery policy, most African countries (including Nigeria) must take into account:  (a) a multiplicity of providers and options for the consumer; (b) varying pricing practices; (c) some cross-subsidization between government and the church-mission sector; and (d) programs to provide free curative health care for the indigent.

## Table 5.13

AFRICA:  GOVERNMENT REVENUE FROM USER CHARGES AS A
PERCENT OF RECURRENT GOVERNMENT EXPENDITURES ON HEALTH SERVICES

| Country | Percent of Recurrent Expenditure |
| --- | --- |
| Botswana, 1979 | 1.3 |
| Burkina Faso, 1981 | 0.5 |
| Burundi, 1982 | 4.0 |
| Côte d'Ivoire, 1986 | 3.1 |
| Ethiopia, 1982 | 12.0 |
| Ghana, 1987 | 12.1 |
| Kenya, 1984 | 2.0 |
| Lesotho, 1984 | 5.7 |
| Malawi, 1983 | 3.3 |
| Mali, 1986 | 2.7 |
| Mauritania, 1986 | 12.0 |
| Mozambique, 1985 | 8.0 |
| Rwanda, 1984 | 7.0 |
| Senegal, 1986 | 4.7 |
| Swaziland, 1984 | 2.1 |
| Zimbabwe, 1986 | 2.2 |

Source:   Vogel (1988) and (1989).

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93/  See Tables 5.3, 5.4, 5.5.

94/  They range from 0.5% for Burkina Faso in 1981 to around 12% for Ghana, Ethiopia and Mauritania in 1987.

5.52     First Principles for a Cost-Recovery Program Schedule.   In setting a system of prices in the health care sector, a government should move carefully, according to a set of pricing principles that flow from its efficiency and equity objectives.  One possible set of principles is contained in Annex R.95/  These principles would establish a fee structure which encourages an effective referral system use of preventive health care and protection of the poor, with investment of revenue, and a monitoring and evaluation mechanism.

5.53     For example, fees could increase with the level of care, but outpatients referred to higher levels in the system would be charged a lower fee at the higher care levels.  Nominal registration fees at the lowest level of care would deter unnecessary utilization, but be low enough for the majority of people to afford.  In order to promote the best health outcomes, the fee structure could allow free follow-up visits and visits by children under five years of age who had an immunization card, with token fees being charged for preventive and family-planning visits.  Amenity wards could bear higher prices and, eventually, possibly even prices sufficient to cover all of the costs of such wards.

5.54     Explicit procedures should be introduced to insure that the poor have access to care.  For example, services could be without charge in poor areas (according to a definition of "poor" that would be considered fair).  Registration fees could be set at very low levels at the dispensaries/health posts and at health centers.  Free follow-ups and lower priced referrals to higher levels of care could ensure access to outpatient care.96/  Existing formal procedures to waive fees for the poor could be continued at each facility not classified as being in a poor area, or a system of reimbursement for the poor could be used because it would be administratively more transparent for facility staff.  The system should be regularly audited to minimize fraud.  At each facility, a centralized

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95/     Along these same lines, Annex S contains a short discussion of the apparently successful cost-recovery experience in Ghana, and also contains the Ghanaian price schedules (for 1983 and 1985) together with the Ghanaian "Modalities for Collecting New Hospital Fees." These documents are included so that the interested reader can see part of the evolution of the cost-recovery pricing schedule in Ghana. Of particular interest is the increase in prices between 1983 and 1985 which eventually made it possible for the cost-recovery ratio to reach 12.1 percent by 1987.  It should also be noted that there has been some discussion about the kinds of utilization declines which took place in Ghana as the result of the higher prices in 1985 (see Waddington and Enyimayou, 1989).

96/     Given that the objective is to get people to go to primary level facilities first and then progress up, in line with their own preferences with respect to time and money, the price signals have to be very clear.  This means that primary care must be significantly cheaper.  However, if primary care is perceived as "better" at the tertiary level facility, the price differential may be insufficient to discourage overuse of the tertiary level facility.  This can be overcome by opening a separate primary care department at the tertiary level facility, with the same differential pricing system with respect to use of primary care and referral service.

admissions location would allow the fee and monitoring information to be collected and a receipt issued. The patient would then see a health care provider. If a follow-up visit or referral were necessary, the provider would indicate this information on the receipt.

5.55    A significant portion (50 to 75 percent) of the fees collected at each facility could be made available to improve the quality of care at the facility, without any commensurate reduction in the government allocation that it received. Likewise, the MOH's funding from the Ministry of Finance should not be reduced as cost-recovery revenues began to accrue. The remaining 50 to 25 percent of fee revenues could be divided among health authorities to enable increased spending on preventive services and ir order to improve quality at facilities that might not initially introduce fees because they were in poor areas. In order to prioritize the expenditure of revenues generated from user fees, a system of guidelines could be introduced to enable local officials to determine quality-enhancing priorities at the facility level. A similar system could also be used to determine priorities for expenditures on prevention and for subsidies to poorer areas.

5.56    Based upon the initial experience as indicated by the monitoring system, the fee structure and administrative system could be adjusted in the future. Expected changes could include (a) raising many of the fees, (b) lowering fees at some levels of care, and in some geographical areas, in order to protect the poor, and (c) adjusting relative fee levels, across levels of care, in order to improve incentives for the appropriate use of facilities. A community-based waiver system for the poor could be introduced, possibly administered under a program that would also apply to other government services, such as education and water. The possibility of extending the waiver system to NGO facilities, with the Government paying for the care of the poor at these facilities, could be explored. Specific service fees (as in Ghana), e.g., for surgery, laboratory work, or X-rays, might be introduced at the secondary level. Amenity ward charges could be raised to more than cover costs.

5.57    The principles outlined in Annex R have been used as an example of how a consistent system of prices could be designed in order to achieve efficiency and equity objectives in the health care sector. They represent one model towards which the Government could move. At present, cost recovery in the public sector in Ogun State exists in a rudimentary state (see Table 5.3 in Section A of this chapter). However, by simulating various cost-recovery strategies within the context of the pricing system now in use, in both the public and private sectors, some insight into consumer response to price and quality changes can be developed, together with the cost consequences of various quality changes. From a policy perspective these insights become invaluable for gradual reform of the present system. Using the cost and demand information provided by the research done for Parts A and B of this chapter, we now turn to these cost-recovery simulations.

5.58     Simulations.  A number of simulations were carried out by changing the values of important independent variables to determine their hypothetical effect upon health care choices.97/  Because the prices used are registration fees -- the price of entry -- rather than the total price of service, and the cost figures are based on a small sample of facilities, the costs and revenue estimated are appropriate for identifying the relative magnitude of the effects of various policy changes, but not for identifying the actual total costs and revenues involved. 98/

5.59     Simulations were carried out for 18 alternative scenarios. These are shown in detail as Cases 2 to 19 in the Appendix to this chapter (see page 97).  To indicate the scope of these simulations, Table 5.14 presents one part of the results.  It is drawn from Table 5.16 (see page 98) in the Appendix.  To read the example simulations in Table 5.14, note that the first row (Case 1) shows that an individual with average values for all variables (including illness symptoms), and facing mean prices and quality for each facility choice, will choose self treatment about 52 percent of the time, will seek public care 35 percent of the time, and private care 13 percent of the time.  In Case 3, the cost of visiting a public facility is doubled, and so is the cost of a private sector visit. In this case, the probability of self treatment increases to 55%, and the likelihood of seeking private treatment falls from 13% to 10%.  If drug availability falls to 50% in both the public and private sectors, visits to private sector facilities would be negligible and the probability of self treatment would rise from a mean of 52% to 69%.  In another simulation, Case 16, the public sector facility was in "poor" condition, while the private sector remained at "good".  The estimation results showed a big decline in public sector visits, from 35% down to 25%, and the probability of visiting the private sector increased for 13% to 20%.  In the full set of simulations, Cases 2 to 19, various changes are made in the key variables at the public sector facilities, namely the price charged and the quality of the facility (i.e drug availability, investment and general condition) with various reactions from the private sector.  In each Case, the simulated outcome shows the likely number of visits that would result from each combination, to each type of facility, and from this the relative change in the public sector gross revenue can be estimated.  The results are discussed in detail in the Appendix to this Chapter (see page 97).

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97/  Simulations are needed due to the difficulty of directly interpreting coefficients in multinomial probit estimation results.

98/  For the simulations, we use only the community-based sample, omitting those individuals who were chosen because a household member was identified at a facility.  We believe this to be a random sample of households with access to facilities and the choices predicted for this group to be reasonable estimates for the total population of those with access to facilities.  For the reasons explained above, however, we utilized the choice-based observations in the weighted sample for estimating the parameters used in the simulation exercises.

TABLE 5.14

SAMPLE OF SIMULATIONS FOR THE PUBLIC SECTOR 1/

| Policy Options | Variable | Change in Public Sector Variable | Private Sector Reaction | Probabilities | | |
|---|---|---|---|---|---|---|
| | | | | Self Treatment | Public Sector Visits | Private Sector Visits |
| Case 1 | | - | - | .52 | .35 | .13 |
| Case 3 | Price of Public Facility Visit | Double (Set to N2.40 instead of N1.20) | Double (Set to N4.44 instead of N2.20) | .55 | .35 | .10 |
| Case 4 | Price of Public Facility Visit | Double (Set to N2.40 instead of N1.20 | No change (Remains at mean) | .53 | .34 | .13 |
| Case 10 | Public Facility Drug Availability | Set at 50% | Also set at 50% | .69 | .31 | .00 |
| Case 16 | Condition of Public Facility | Set at "poor" | No change (Remains at "good" | .54 | .25 | .20 |

1/ Full details are in Table 5.16, page 98.

5.60    Gross Revenue Effects   Broadly speaking the results (as shown in the Appendix at Table 5.16, page 98) highlight two issues.  The first is that the public sector increases revenue by raising its price with only a small change in number of visits, so long as the relative price of public sector health care is less than the private.  For example, if the public sector raised its price but remained below the private sector price there was only a slight decline in demand.  However, if the public sector maintained its mean price and the private sector doubled its price, public sector visits increased only marginally; self-treatment became more popular.  The change in gross revenue is relatively greater in the former case.

5.61    Second, increases in investment (expenditure per person in the population served), in drug availability, and in quality (condition of the facilities) sharply increased public sector visits, with the magnitude affected by private sector reaction to only a limited extent.  However, while the revenue effects on the public sector can be significant, such improvements are also costly.

5.62    Gross Cost Effects   Table 5.17, in the Appendix of this Chapter (see page 102) shows the gross cost estimates for the quality improvements. For example, while Cases 3 and 4 yielded a relatively large surplus for the public sector of N3.6 million, and Case 16 a more modest surplus of N2.2 million, Case 10 showed a loss of N1.1 million.  The general picture shows that price increases have a clearly positive effect on the surplus or loss calculations, but each quality improvement requires significant investment which in some cases may swamp the revenue effect of the additional visits that it generates.  These calculations highlight the need for careful selection of improvements.

a. <u>Choosing among the 19 Policy Options</u> <u>99</u>/

5.63    Table 5.15 summarizes the revenue and cost policy options, and these are plotted against visit frequency in Figure 5.3 <u>100</u>/. In these simulations, it is emphasized that what is illustrated is <u>relative</u> magnitudes not <u>actual</u> revenues and costs.

5.64    Figure 5.3 helps to answer the question: Which is the "best" of the 19 cases for public policy to pursue? However, one must first define "best," i.e., what government wishes to maximize at a given level of cost. One possible approach to the maximization problem would be to try to maximize the frequency of visits to modern health care facilities, on the grounds that it is presumably more technically efficient (there is a greater probability of having a cure) if a person has formal health care, rather than self-care, when that person experiences an episode of illness. Therefore, two possible maximizing solutions would be to pursue the policies underlying either Case 18 or Case 19 (in the northwest quadrant of Figure 5.3), where the sum total of public and private visit-frequencies is the highest, at 0.53. However, Case 18 yields a net loss of ₦4.4 million, while the net loss in Case 19 is ₦4.8 million.

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<u>99</u>/   These estimates of total gross revenues and total gross costs, and the resulting surplus or losses, are only as realistic as the assumptions upon which they are based. On the gross revenue side, N, the total number of episodes of illness in Ogun State, had to be estimated for 1986. This estimate is the key to Table 5.16, because the frequencies are applied to it, and, as a consequence, the number of public visits and the amount of public revenues for the various cases are derived from it secondarily. Likewise, on the cost side, many of the assumptions about costs, e.g., the value of what we have called the "volume" marginal cost, came from econometric work that had to make do with a sample of only 24 facilities, out of a total of 445. Nevertheless, the assumptions were based upon the combined previous health economics and field work of all of the authors.

<u>100</u>/  In Figure 5.3, the dots show the frequencies of public visits and surplus or loss, and the number to the right of the dots shows the Cases 1 through 19; the boxes show the sum of public and private frequencies (<u>total formal</u> health care frequencies) and public sector surplus or loss for the Cases 1 through 19. For example, in the northeast quadrant, Case 4 is shown with a dot at a public visit frequency of 0.34 and at a public sector surplus of ₦3.4 million; Case 4 is also shown with a box, higher up on the visit frequency scale, at a public <u>plus</u> private sector visit frequency of 0.47, and at a public sector surplus of ₦3.4 million. For reference, Case 1 is
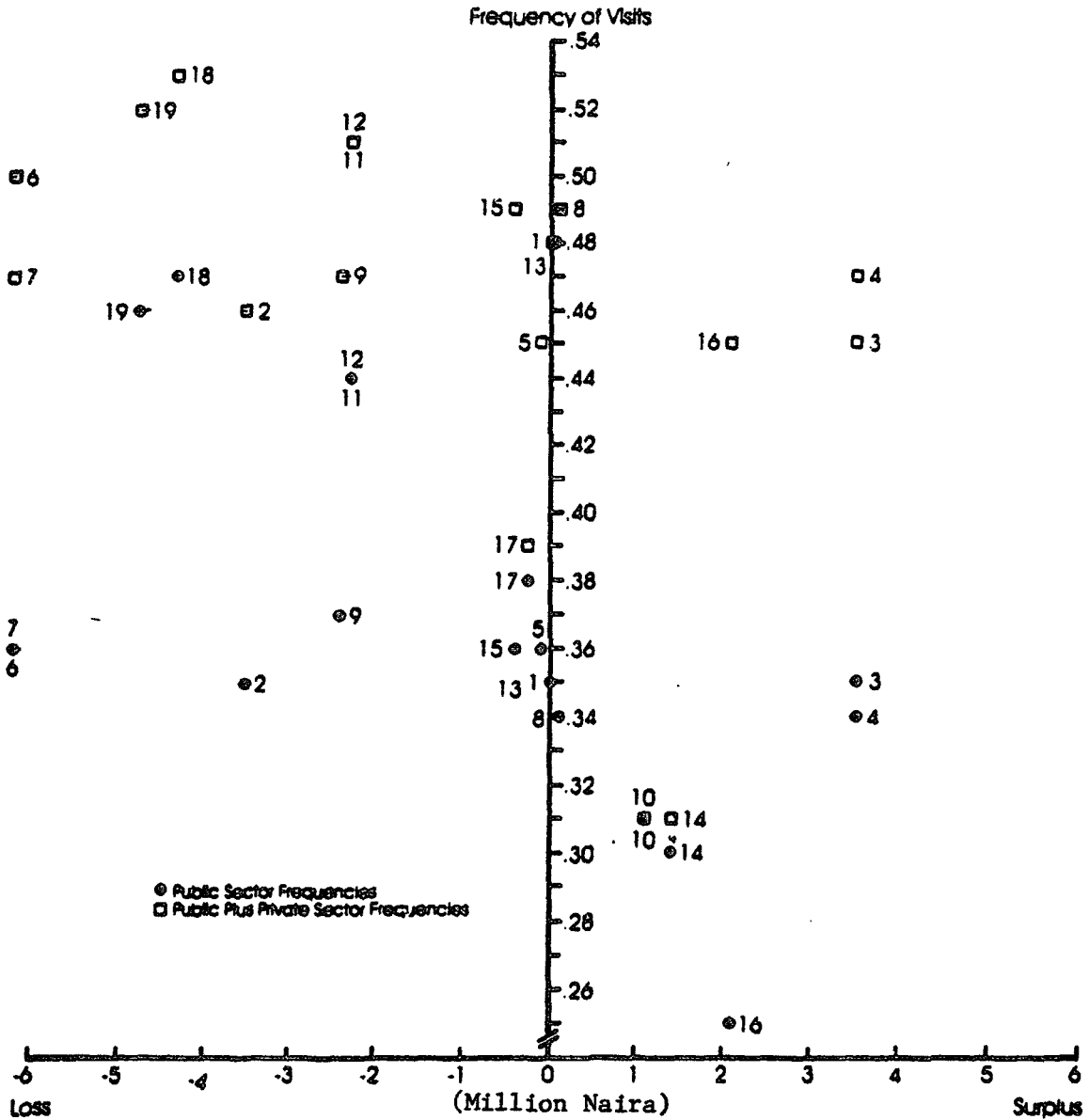
## Table 5.15

### SUMMARY OF REVENUE AND COST POLICY OPTIONS
### AND VISIT FREQUENCIES

| Policy Options | Surplus or Loss (Index)a/ | Public Sector Frequencies | Public Plus Private Sector Frequencies |
|---|---|---|---|
| Case 1 | n.a. | .35 | .48 |
| 2 | - | .35 | .46 |
| 3 | ++ | .35 | .45 |
| 4 | ++ | .34 | .47 |
| 5 | 0 | .36 | .45 |
| 6 | -- | .37 | .50 |
| 7 | -- | .37 | .48 |
| 8 | 0 | .34 | .49 |
| 9 | - | .37 | .47 |
| 10 | - | .31 | .31 |
| 11 | - | .44 | .51 |
| 12 | - | .44 | .51 |
| 13 | 0 | .35 | .48 |
| 14 | + | .30 | .31 |
| 15 | 0 | .36 | .49 |
| 16 | + | .25 | .45 |
| 17 | 0 | .38 | .39 |
| 18 | - | .47 | .53 |
| 19 | - | .46 | .52 |

a/ Index for surplus/loss is as follows: + or - means within one standard deviation of average surplus or loss, respectively; ++ or -- is within two standard deviations of average surplus or loss; 0 is approximately breakeven.

FIGURE 5.3

Frequencies of Visits and Surplus or Loss: The 19 Cases



Frequency of Visits

● Public Sector Frequencies
□ Public Plus Private Sector Frequencies

-6   -5   -4   -3   -2   -1   0   1   2   3   4   5   6
Loss              (Million Naira)              Surplus

ksr/w46570g

5.65     If large losses, or indeed any losses, are judged impossible to
sustain, then trade-offs have to be made between visit-frequencies and
cost-recovery surplus or break-even.  Case 4 maximizes the sum of public
and private sector visit-frequencies, if the MOH desires a net surplus that
could, for example, be spent on the poor or spent on pharmaceuticals in the
next time period.  Cases 3 and 16 also result in relatively high combined
visit-frequencies, with a net surplus, but Case 16 only has a 0.25 public
sector visit-frequency, which might not be acceptable to the MOH, and Case
16 results in a lower net surplus than either Case 3 or Case 4.

b.     The Administrative Costs of a Cost Recovery Program

5.66     The cost calculations in Table 5.17 do not contain
administrative costs, for the simple reason that not much is yet known
about the additional costs of administering an expanded cost-recovery
system.101/  On the one hand, it could be argued that, because there is
already so much non-health worker slack in the health care system (see
Part A of this chapter) the non-health workers could be more efficiently
used by retraining them to become cost-recovery agents in the health care
facilities.  Apart from marginal training costs, this labor-shifting aspect
of cost-recovery administration would cause little additional expense to
the MOH because the salaries of the non-health workers would be paid,
whether they were idle part of the time or whether they were to become more
fully employed as cost-recovery agents.  On the other hand, if, because of
institutional labor rigidities, the MOH has to hire additional personnel
for the administration of expanded cost recovery, then administration of
the expanded program could become relatively expensive, particularly if
higher priced personnel, such as accountants, had to be hired in large
numbers.

5.67     In the absence of any firm data on the subject, Annex U attempts
to simulate two sets of administrative costs for the 19 cases on the basis
of two sets of assumptions, one making administrative costs solely a
function of total gross revenue generated, and the other making
administrative costs a function of the number of new personnel needed per
change in 10,000 visits.

c.     Cost Analysis Results

5.68     The preceding theoretical and empirical work indicates that more
intensified cost recovery in the public health care sector in Ogun State is
both a desirable and an achievable objective that the government could
pursue.  However, the results show that the two "best" policy scenarios do
not even include the changes in quality that both the theoretical analysis
and anecdotal information deem to be so important for a successful cost-
recovery policy.  Within the framework of analysis in Part C of this paper,
the quality changes appear too expensive to justify, relative to the
changes in demand that they engender.  However, this type of economic
analysis has the inherent limitation that it is "comparative-static," in
the sense that its methodology forces it to move from state-of-the-world to
state-of-the-world, without being able to take into account the inherent
dynamics of the real world situation.  Thus, Case 3 or Case 4 would yield a
net surplus in this time period (N3.04 million).  In the next time period

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101/ Although Vogel (1988) presents an intensive study of cost recovery in
     four sub-Saharan countries, data on administrative costs were not
     available at the time of the study, so that the empirical
     administrative-cost aspect of cost recovery could not be researched.
     The topic deserves much more attention and further empirical study in

part of this surplus could be used to pay for more and better care for the poor and/or to increase drug availability at public sector facilities, and/or improve the physical condition of public facilities.102/

5.69      In a third time period, we would expect the demand for public health care to shift outward even further, as a result of the quality changes (see the change in probabilities in Cases 11 and 15 in Table 5.16). Using the results of the comparative-static analysis within a dynamic-time context, they yield final empirical results that are consistent with both the theoretical economic framework and with intuition.

5.70      Finally, good administrative and managerial practices are essentials for successful cost recovery and, as such, cannot be neglected or ignored.103/  Before Ogun State embarks upon more extensive cost recovery than in the past, it must make ample provision for training the managerial cadre, the quality of which will almost surely determine the success or failure of any new intensified cost-recovery effort.  Moreover, and perhaps more importantly, success or failure of cost-recovery efforts cannot be measured solely in terms of the amounts of net revenue generated or lost.  Equity for the poor is another extremely important objective of cost recovery in Nigeria.104/  There are two administrative aspects in achieving equity.  The first is the establishment of procedures for defining and identifying those persons who are too poor to pay any fees when they seek treatment at public facilities; the administrative tasks involved in this equity aspect of cost recovery have not proven easy (Vogel, 1988).  The second is creating and implementing allocation mechanisms whereby a trade-off is made between the portions of the net cost-recovery revenue that will be left at the collecting facilities in order to give them strong incentives to continue to collect fees, and the portions that will go to the MOH to be distributed to poorer lower level facilities, or to areas of the country (or state) where the poor live and seek health care.  Much more analytical attention and empirical research needs to be given to these two administrative aspects of cost recovery.

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102/ Case 3 or Case 4 would yield a net surplus of ₦3.039 million (here, even after having subtracted out the most expensive administrative-cost scenario) in this time period.  In the next time period, part of this surplus could be used to pay for more and better care for the poor, and/or to move the drug availability in public sector facilities from 0.72 of the time to 0.9958 of the time, which would only cost about ₦1.770 million (see Case 19 in Table 5.17).  This would leave a further amount of ₦1.269 million (3.039 minus 1.770) that could be used for another quality-enhancing policy action in the same subsequent time period, such as changing the physical condition of public facilities from the mean 1.2867 ("good" to "fair") to 1.0 ("good"), which would only cost about an additional ₦0.384 million (see Cases 15 and 18 in Table 5.17).

103/ Vogel (1988) and Vogel and Stephens (1989). Both of these studies indicate that major difficulties in health care facility cost recovery and the failure of most of the revolving drug funds (RDF) in donor projects in Africa can be primarily attributed to weak administration and managerial neglect.

104/ In October 1988, the Nigerian National Health Policy was launched; it states that, "As a general policy, users shall pay for curative services, but preventive services shall be subsidized.  Generally, public assistance shall be provided to the socially and economically

## Conclusion

5.71    In undertaking this work, it has to be recognized that the analysis is not based on definitive data but on relative data, to indicate magnitudes and directions.   For example, the data is not of total costs to the patient (being based on registration fees) but relative costs, and limited proxies are used for quality measures.   The analysis yields striking results.

5.72    Facility Analysis  It was found that for both inpatient and outpatient services facilities are operating with marginal cost less than average cost, especially for outpatient services highlighting the opportunities for increasing returns to scale for admissions and nearly constant returns to scale for visits.   The fact that even private sector providers were not achieving the minimum acceptable technical efficiency of 600 visits per health worker was surprising.

5.73    The allocative analysis showed that public sector facilities are not using cost-minimizing combinations of health workers and support staff; the relative productivity of non-health workers is less than their relative wage, suggesting health care providers should re-examine their use of such staff to ensure that they are fully and optimally employed.

5.74    Household Demand  The majority of the lowest income group seek health from public facilities while the highest income group makes more use of private facilities.   But the more wealthy groups do not avoid public facilities:  over half of the highest income groups who used a facility used a public facility.  As expected, of all income groups, self treatment is greatest in the lowest income groups.

5.75    Although price is significant in selecting health care, it is of small magnitude.  Of more significance is the perceived quality of the facility.  Measures of quality used were limited, but provide good indicators of basic issues:  drug availability, physical condition of the facility, and investment on provision of care.   The first two were highly significant, and the third significant at a low level.  It appears that higher prices can be offset by higher quality:  if revenues from higher prices at public facilities are used to increase care quality, especially with respect to availability of drugs and quality of the facilities, usage of these facilities (and of modern health care in general) might well increase.

5.76    Cost Recovery Simulations  Using the cost estimates developed in Part A of the chapter, and the probabilities of selecting each type of care responding to different variables as estimated in Part B, simulations of policy change were made.  These results show the estimated relative change in magnitude and direction, rather than the actual net loss or surplus.  The results are illuminating for policymakers, showing that if public sector prices are raised, the probability of seeking public sector care changes only marginally depending on the response of the private sector, but the revenue impact is large.  This increase in revenue, if invested in the facilities, could then result in an increase in public sector visits.  However, price increases which are not subsequently or concurrently rewarded with quality improvements, are likely to result in a loss of demand that could overwhelm the revenue expectations.

5.77    These results highlight the major role that perceived facility quality plays in the decisions which patients make.  But quality change can have very large cost implications, which could swamp revenue effects. Therefore the specific quality improvements need to be carefully selected, choosing those which are most cost-efficient, providing the greatest demand response for the least amount of investment.  Making this selection efficiently will require adequate information systems at the facility level.

## APPENDIX

## COST RECOVERY:  SIMULATIONS OF GROSS REVENUE AND GROSS COST EFFECTS

1.      Simulations  A number of simulations were carried out by
changing the values of important independent variables to determine their
hypothetical effect upon health care choices105/.  Because the prices
used are registration fees -- the price of entry -- rather than the total
price of service, and the cost figures are based on a small sample of
facilities, the costs and revenues estimated are appropriate for
identifying the relative magnitude of the effects of various policy
changes, but not for identifying the actual total costs and revenues
involved.106/

2.      The results shown in the first row of columns 4,5 and 6 of Table
5.16 (denoted as Case 1) show that an individual with sample mean values
for all variables (including illness symptoms), and facing mean prices and
quality for each facility choice, will choose self treatment about 52
percent of the time, will seek public care 35 percent of the time, and
private care 13 percent of the time.  Cases 2 through 19 in Table 5.14
represent various possible realistic policy scenarios, or "cases" that
government could pursue with respect to public sector price and quality
changes.  Column 1 shows the public sector variable; column 2 shows the
magnitude of the change in the public sector variable; and column 3 shows
possible private sector reactions to changes in public sector pricing and
quality changes.  Columns 4, 5 and 6 give the respective probabilities of
self treatment, public visits and private visits generated by the
multinomial probit model, as the independent variables change.107/
Thus, for example, in Case 3, if the public sector doubled its price from a
mean value of ₦1.2 to ₦2.4, and the private sector responded by doubling
its price from a mean value of ₦2.2 to ₦4.4, the probability of no
consultation/self treatment would increase from 52 percent (at the mean of
all of the independent variables in Case 1) to 55 percent; the probability
of public visits would remain the same at 35 percent; and the probability
of private visits would decline from 13 percent to 10 percent.

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105/ Simulations are needed due to the difficulty of directly interpreting
     coefficients in multinomial profit estimation results.

106/ For the simulations, we use only the community-based sample, omitting
     those individuals who were chosen because a household member was
     identified at a facility.  We believe this to be a random sample of
     households with access to facilities and the choices predicted for
     this group to be reasonable estimates for the total population of
     those with access to facilities.  For the reasons explained, however,
     we utilized the choice-based observations in the weighted sample for
     estimating the parameters used in the simulation exercises.

107/ The income, urban residence and wealth (own a vehicle) independent
     variables in Table 5.12 are not considered operator variables here,
     because they are not policy instruments that come under the portfolio

# TABLE 5.16

## COST RECOVERY, GROSS REVENUE SIMULATIONS FOR PUBLIC SECTOR

| (1) Policy Options | Variable | (2) Change in Public Sector Variable | (3) Private Sector Reaction | (4) Self Treatment/No Consultation | (5) Public Visits | (6) Private Visits | (7) Self Treatment/No Consultation | (8) Public Visits | (9) Private Visits | (10) Total Revenue, Public Sector (Naira '000) | (11) Change in Total Gross Revenue Public Sector 3/ (Naira '000) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Probabilities | | | Number of episodes 2/ | | | | |
| Case 1 | All Variables at Mean 1/ | - | - | .52 | .35 | .13 | 4,412,717 | 2,970,098 | 1,103,179 | 3,500 | 0 |

### Pricing Variations

| (1) Policy Options | Variable | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Case 2 | Public Facility Price | Set to 0 | Set to 0 | .49 | .35 | .16 | 4,158,137 | 2,970,098 | 1,357,759 | 0 | -3,600 |
| Case 3 | " " | Set to 2.40 | Set to 4.44 | .55 | .35 | .10 | 4,667,297 | 2,970,098 | 848,599 | 7,100 | +3,600 |
| Case 4 | " " | Set to 2.40 | At mean | .53 | .34 | .13 | 4,497,577 | 2,885,238 | 1,103,179 | 6,900 | +3,400 |
| Case 5 | " " | At mean | Set to 4.44 | .55 | .36 | .09 | 4,667,297 | 3,054,958 | 763,739 | 3,700 | + 100 |

### Quality Variation A

| (1) Policy Options | Variable | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Case 6 | Expenditure Per Person Served in Public Facility | Set to 6.08 | Set to 2.72 | .50 | .37 | .13 | 4,242,997 | 3,139,818 | 1,103,179 | 3,600 | + 200 |
| Case 7 | " " | Set to 6.08 | At mean | .52 | .37 | .11 | 4,412,717 | 3,139,818 | 933,459 | 3,600 | + 200 |
| Case 8 | " " | At mean | Set to 2.72 | .51 | .34 | .15 | 4,327,857 | 2,885,238 | 1,272,899 | 3,500 | - 100 |

### Price and Quality Variations A

| (1) Policy Options | Variable | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Case 9 | Public Facility Price; Expenditure Per Person Served in Public Facility | Set to 2.40; Set to 6.08 | Set to 4.44; Set to 2.72 | .53 | .37 | .10 | 4,497,577 | 3,139,818 | 848,599 | 7,500 | +4,000 |

### Quality Variations B

| (1) Policy Options | Variable | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Case 10 | Public Facility Drug Availability | Set to .50 | Set to .50 | .69 | .31 | .00 | 5,855,336 | 2,630,656 | 0 | 3,100 | - 400 |
| Case 11 | " " | Set to 1.0 | Set to 1.0 | .48 | .44 | .07 | 4,073,277 | 3,733,837 | 594,020 | 4,500 | + 900 |
| Case 12 | " " | Set to 1.0 | At mean | .48 | .44 | .07 | 4,073,277 | 3,733,837 | 594,020 | 4,500 | + 900 |
| Case 13 | " " | At mean | Set to 1.0 | .52 | .35 | .13 | 4,412,717 | 2,970,098 | 1,103,179 | 3,600 | 0 |

### Quality Variations C

| (1) Policy Options | Variable | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Case 14 | Public Facility Condition Index | Set to 3 | Set to 3 | .68 | .30 | .01 | 5,770,476 | 2,545,798 | 84,860 | 3,000 | - 500 |
| Case 15 | " " | Set to 1 | Set to 1 | .50 | .36 | .13 | 4,242,997 | 3,054,958 | 1,103,179 | 3,700 | + 100 |
| Case 16 | " " | Set to 3 | At mean | .54 | .25 | .20 | 4,582,437 | 2,121,498 | 1,697,199 | 2,500 | -1,000 |
| Case 17 | " " | At mean | Set to 3 | .61 | .38 | .01 | 5,176,456 | 3,224,678 | 84,860 | 3,900 | + 300 |

### Price and Quality Variations A, B, and C

| (1) Policy Options | Variable | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Case 18 | Public Facility Price | Set to 2.40 | Set to 4.44 | .47 | .47 | .06 | 3,988,417 | 3,988,417 | 509,160 | 9,600 | +6,000 |
| | Expenditure Per Person Served in Public Facility | Set to 6.08 | Set to 2.72 | | | | | | | | |
| | Public Facility Drug Availability | Set to 1.00 | Set to 1.00 | | | | | | | | |
| | Public Facility Condition Index | Set to 1.00 | Set to 1.00 | | | | | | | | |
| Case 19 | Public Facility Price | Set to 2.22 | Set to 2.22 | .47 | .46 | .07 | 3,988,417 | 3,903,557 | 594,020 | 8,700 | +5,100 |
| | Expenditure Per Person Served in Public Facility | Set to 6.08 | Set to 2.72 | | | | | | | | |
| | Public Facility Drug Availability | Set to .9958 | Set to .9958 | | | | | | | | |
| | Public Facility Condition Index | Set to 1.16 | Set to 1.16 | | | | | | | | |

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1/ **Means of Independent Policy Variables**

| | | |
|---|---|---|
| Public Facility Price Per Visit | = | 1.1962 (in Naira, per visit) |
| Private Facility Price Per Visit | = | 2.2230 (in Naira, per visit) |
| Public Facility Expenditure Per Person Served | = | 3.0416 (in Naira, per person in population served) |
| Private Facility Expenditure Per Person Served | = | 1.8571 (in Naira, per person in population served) |
| Public Facility Drug Availability | = | 0.7287 (percentage of time available) |
| Private Facility Drug Availability | = | 0.9958 (percentage of time available) |
| Public Facility General Condition | = | 1.2667 (1=good; 2=fair; 3=poor) |
| Private Facility General Condition | = | 1.1634 (1=good; 2=fair; 3=poor) |

2/ Number of Episodes = Frequency x N, where N is the total number of self-perceived episodes of illness.

3/ With respect to Case 1, where all independent variables are at their means.

### 1. Gross Revenue Effects

3.      These probabilities can also be interpreted as frequencies of episodes of illness, and the number of episodes of self treatment, public visits, and private visits in columns 7, 8 and 9 in Table 5.16 result from multiplying the total number of episodes of illness times the respective frequencies in columns 4, 5 and 6. 108/ Using outpatient registration fees as the prices, column 10 shows the total revenue that the public sector would generate by each case strategy (with the subsequent private sector reaction); column 11 gives the change in total revenue in the public sector relative to Case 1, where all of the independent variables are at their mean values.109/

4.      Price Variations: Cases 2 through 5 show that total gross revenue from registration fees will change if public and private sector prices also change. For Cases 2 and 3, as public and private prices move in the same direction, the quantity of public visits demanded does not change. Case 2 does show that reducing the public price to zero produces a large deficit in total gross public revenue. Doubling the mean public price (Case 3) produces an equally large surplus. Case 4 also doubles the public sector price, but, because the private sector does not react, and in fact leaves its prices still higher than those in the public sector, the quantity of public visits demanded declines only slightly. The change in

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108/ The total number of identifiable public and private health care facilities was 437. The weighted average annual number of visits for the public and private facilities in 1986 was 9,321. Therefore, the total number of visits was 4,073,22⁻. At the mean of the independent variables, the sum of the public and private probabilities of visits is .48. Then, N = 4,073,277/.48 = 8,485,994. With a total 1986 population in Ogun State of 2,847,521, this would amount to 2.98 episodes of illness per person, and 1.4 visits per person per year for modern health care.

109/ Some of the public sector policy actions in Table 5.16 will cause changes in the quantity demanded, will shift demand, and cause movements along the marginal cost curve and shifts in the marginal cost curve (see Part A). Therefore, a discussion of net revenue results is not possible until the gross cost changes in Table 5.16 are more carefully examined. Also, it must be emphasized that the poor population is taken into account in the discussion by means of reference to the category "self treatment" in columns 4 and 7 in Table 5.14. As the price and quality variables change in Cases 2-19, relative to those in Case 1, the frequency "self treatment/no consultation" (column 4), and the number of episodes of illness with "self treatment" (column 7) vary respectively in range from 0.47 and 4.0 million (Cases 18 and 19) to 0.69 and 6.0 million (Case 10). Some of the ⁻ "self treatments" are the people who are being priced out of the market, going from 4.0 million to 6.0 million "self treatments," and some of these people are those who choose to leave the public and/or private formal system for quality-of-care reasons. As will be discussed below, administrative mechanisms have to be implemented to protect the poor who might initially be priced out of

total gross public sector revenue is, therefore, strongly positive.110/
Case 5 assumes that the public sector maintains its mean price per visit
while the private sector doubles its per visit price.  In this policy
option, the demand for public sector visits increases only slightly, as
does gross public sector revenue.  This finding suggests that the cross-
price elasticity of demand between the public and private sector is low,
holding the other policy variables constant.

5.     Quality Variations (Expenditure per Person in the Population
Served):  Cases 6 through 8 assume changes in public and private sector
quality of care provided with no unit price variation.111/  In Cases 6
and 7, the public sector doubles its expenditure mean (COSTPU),112/
while the private sector reacts by setting its expenditure (COSTPR) higher
than the mean in Case 6 and at the mean in Case 7. 113/  Both policy
options produce increases in the frequency of public visits and in gross
public sector revenue.  Finally, Case 8 assumes that COSTPU is at its mean,
while the private sector raises COSTPR above the mean.  This scenario of
increased private quality with no quality improvement in the public sector
produces slightly fewer public sector visits and slightly less gross public
sector revenue.

6.     Combined Price and Quality Variations:  Case 9 simulates the
combination of price and quality variations.  In this policy option, both
public and private sector facilities double their per visit prices.
Likewise, public and private sector facilities spend twice as much per
person in the population served, a doubling of this quality index.  Total
gross revenue in the public sector in Case 9 far exceeds that of Case 1.
The frequency of public sector visits increases somewhat as does the
quantity of public visits supplied and demanded.114/  Not only would
more people be served by the public sector, but the care received would be
of better quality.

7.     Quality Variations:  Cases 10 through 13 show results for
quality variations relating to changes in the public sector quality index,

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110/ Because the percentage negative change in the quantity of public
visits demanded is less than the percentage positive change in the
public sector price per visit charged, the demand for public visits
is price inelastic within this price range, and total revenue
increases.

111/ The changes in the frequencies and number of visits should now be
interpreted as shifts in the demand curve as the result of quality
changes, rather than as movements along the demand curve.

112/ Defined as "public facility expenditure per person in the population
served."

113/ Defined as "private facility expenditure per person in the population
served."

114/ There are four economic reasons for these changes: (1) movements
along the demand curve caused by the change in price per unit; (2) a
demand shift caused by increased quality; (3) movement along the
marginal cost function caused by the demand shift; and (4) a marginal
cost function shift caused by increased quality.  The gross revenue
calculations in Table 5.14 only show (for the time being) the revenue
effects; the combined revenue and cost effects are considered in the

<u>drug availability</u>, and private sector reactions, holding all the other independent variables constant at their mean values.  <u>Cases 14 through 17</u> assume a quality variation in the index, <u>physical condition</u> of public facilities, and private sector reactions.  The revenue consequences of these drug availability and physical condition simulations may be analyzed in the same manner as were Cases 6 through 8, where expenditure per person in the population served was the quality variable.

8.          <u>Quality Variations (Drugs, Expenditure and Condition)</u>: <u>Cases 18 and 19</u> show the largest estimated gains in total gross public revenue.  In these policy options, public sector price and all three measures of public sector quality vary as policy options.  In the extreme case (18) where for the public facilities drugs are available 100 percent of the time, expenditure per person doubles, and all buildings are in "good" physical condition, both public and private sector prices can double and still result in a significant increase in public sector revenue.  However, as noted below, these quality changes cause even larger estimated increases in the costs.  In Case 19, the public sector sets its prices at the private level, doubles the expenditure per population served quality index, and sets its other two quality indices at the levels of the private sector.

    2.   <u>Gross Cost Effects</u> <u>115</u>/

9.          Gross cost estimates for the 19 scenarios are not as straightforward as the gross revenue estimates.<u>116</u>/  This is mainly because the quality changes that were used as independent variables had no <u>quantitative</u> cost content.<u>117</u>/  Consequently, the frequency changes that result from changing independent variables from their means do not directly yield quantitative cost estimates.<u>118</u>/  However, quantitative cost estimates for the purpose of cost comparisons can be derived from the econometric work in paragraphs 5.43-5.47. <u>119</u>/

10.         Table 5.17 contains the gross cost estimates for the four categories of costs, a total costs column (column 6), and a net surplus or loss column (column 7).<u>120</u>/

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<u>115</u>/ The calculations of revenues and costs are shown in detail in Annex T.

<u>116</u>/ The gross revenue estimates for the public sector in each scenario were simply a function of the price charged (in this case, the registration fee) and the number of public sector visits.

<u>117</u>/ That is, they were relatives (i.e., index-number type variables).

<u>118</u>/ They do, however, reflect movements along demand and marginal cost curves and demand responses to shifts in these curves.

<u>119</u>/ Specifically, they may be derived from the calculations that use cost function and facility expenditure function information.

<u>120</u>/ As these demand quantities change, there will be movement along the marginal cost curve.  All of these cost changes are "changes at the margin," i.e., with reference to the mean values of the independent variables.  In order not to cause confusion in the mind of the reader, column 2 in Tables 5.16 and 5.17 has been labeled "<u>Marginal</u> Total Cost...," and columns 3, 4 and 5 have been labeled "<u>Incremental</u> Total Cost..."  Using this terminology then, "Marginal" refers to <u>movements</u>          the          as                              in Part A,

Table 5.17
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COST RECOVERY, COST CALCULATIONS AND SURPLUS OR LOSS FOR PUBLIC SECTOR 1/

(Thousand Naira)

| (1) Policy Options / Public Sector Variable 2/ | (2) Change in Public Sector Variable | (3) Marginal Total Cost of Changes in Quantity Supplied | (4) Incremental Total Cost of COSTPU | (5) Incremental Total Cost of DRPU | (6) Incremental Total Cost of CONDPU | (7) Change in Total Costs, Public Sector (Cols 3+4+5+6) | (8) Surplus or Loss (Col. 11, Tab 5.16 minus Col 7 Table 5.17) |
|---|---|---|---|---|---|---|---|
| Case 1 | | 0 | 0 | 0 | 0 | 0 | 0 |
| **Pricing Variations** | | | | | | | |
| Case 2  Public Facility Price Per Visit | Set to 0 | 0 | 0 | 0 | 0 | 0 | -3600 |
| Case 3  Public Facility Price Per Visit | Set to 2.40 | 0 | 0 | 0 | 0 | 0 | +3600 |
| Case 4  Public Facility Price Per Visit | Set to 2.40 | -200 | 0 | 0 | 0 | -200 | +3600 |
| Case 5  Public Facility Price Per Visit | Set at mean | +200 | 0 | 0 | 0 | +200 | -100 |
| **Quality Variations A** | | | | | | | |
| Case 6  Public Facility Expenditure Per Person Served | Set to 6.08 | +400 | +6100 | 0 | 0 | +6500 | -6300 |
| Case 7  Public Facility Expenditure Per Person Served | Set to 6.08 | +400 | +6100 | 0 | 0 | +6500 | -6300 |
| Case 8  Public Facility Expenditure Per Person Served | Set at mean | -200 | 0 | 0 | 0 | -200 | +100 |
| **Price and Quality Variations A** | | | | | | | |
| Case 9  Public Facility Price Per Visit | Set to 2.40 | +400 | +6100 | 0 | 0 | +6500 | -2500 |
| Public Facility Expenditure Per Person Served | Set to 6.08 | | | | | | |
| Case 10 Public Facility Drug Availability | Set to 0.50 | -700 | 0 | -800 | 0 | -1500 | -1100 |
| Case 11 Public Facility Drug Availability | Set to 1.0 | +1600 | 0 | +1600 | 0 | +3200 | -2300 |
| Case 12 Public Facility Drug Availability | Set to 1.0 | +1600 | 0 | +1600 | 0 | +3200 | -2300 |
| Case 13 Public Facility Drug Availability | Set at mean | 0 | 0 | 0 | 0 | 0 | 0 |
| **Quality Variations C** | | | | | | | |
| Case 14 Public Facility General Condition | Set to 3 | -1000 | 0 | 0 | -1000 | -2000 | +1500 |
| Case 15 Public Facility General Condition | Set to 1 | -200 | 0 | 0 | +400 | +600 | -500 |
| Case 16 Public Facility General Condition | Set to 3 | -2200 | 0 | 0 | -1000 | -3200 | +2200 |
| Case 17 Public Facility General Condition | Set at mean | +600 | 0 | 0 | 0 | +600 | -300 |
| **Price and Quality Variations A, B, and C** | | | | | | | |
| Case 18 Public Facility Price Per Visit | Set to 2.40 | +2100 | +6100 | +1900 | +400 | +10400 | -4400 |
| Public Facility Drug Availability | Set to 1.00 | | | | | | |
| Public Facility Expenditure Per Person Served | Set to 1.00 | | | | | | |
| Case 19 Public Facility Price Per Visit | Set to 2.22 | +1900 | +6100 | +1800 | +200 | +9900 | -4800 |
| Public Facility Expenditure Per Person Served | Set to 6.08 | | | | | | |
| Public Facility Drug Availability | Set to 0.9958 | | | | | | |
| Public Facility General Condition | Set to 1.16 | | | | | | |

1/ Basis for revenue and cost calculations are provided in Annex T.

2/ Means of Independent Policy Variables

| | |
|---|---|
| Public Facility Price Per Visit (PRPU) | = 1.1962 (in Naira, per visit) |
| Public Facility Expenditure Per Person Served (COSTPU) | = 3.0416 (in Naira, per person in population served) |
| Public Facility Drug Availability (DRPU) | = 0.7287 (pecentage of time available) |
| Public Facility General Condition (CONDPU) | = 1.2667 (1=good; 2=fair; 3=poor) |

11.      Cases 2 through 5 are concerned only with price changes, holding everything else constant. Setting public and private prices to zero (Case 2), or doubling both (Case 3), does not change demand for public visits. Thus the marginal total cost of either one is zero[121]. Case 2 is predicted to cause a loss of revenue, while Case 3 (where the price of a visit to either a public or a private facility is doubled) would lead to a large increase[122]. In Case 4, where the public sector doubles its prices while the private sector price remains constant, costs to the public sector decrease because fewer clients are served.[123] The pricing scenario in Case 5 (private sector doubles prices, public sector price stands pat), slightly increases the frequency and quantity of public visits and, as a result, small marginal total cost increases are realized.[124]

12.      Cases 6 through 9 examine quality variations (changes in expenditure per person in the population served by the public and private sector). Cases 6 and 7 have large and identical net costs to the public sector because they both postulate a doubling of public expenditures per person in the population served. As shown in Table 5.16 even though additional public sector expenditure per person in the population served increases, public sector visits are stimulated, not enough revenue results

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121/ That is, within the public sector, there is no movement along the demand curve or the marginal cost curve.

122/ Of course, any surplus could be used to purchase more drugs, and/or to increase public expenditures per person served, and/or to improve the physical condition of public facilities, in the next time period.

123/ In Part A, we estimated that marginal cost in the 24 "efficient facilities (of a total of 68 facilities that were asked to provide utilization data) which were used for the econonometric analysis was ₦4.82. However, the definition of "efficiency" is a function of the number of visits per health worker per year, and these 24 facilities were working at full capacity and with marginal cost above the average incremental cost of ₦3.73. The data indicate that the other 282 government facilities (305 minus 24) are not working at full capacity and with marginal cost is probably below average cost. Therefore, for this set of estimates, the marginal cost of 4.82 was simply halved to 2.4. Adding these savings to the ₦3.372 million increase in gross revenue due to the Case 4 pricing scenario (column 11, Table 5.16), produces a net surplus for Case 4 of ₦3.575 million that, as with Case 3, could be used to purchase more drugs, etc., in the next time period. The fact that the net surplus for Cases 2 and 3 calculate out to be the same ₦3.575 million is simply an artifact of the same value of 2.4 being assumed for marginal cost and the doubling of the mean public price to 2.4. Different assumptions about the value of marginal cost and/or about the change in price would produce surplus or loss results for Cases 2 and 3 which would not be the same for both cases (as has happened here).

124/ Essentially, costs rise because more patients are treated, but fees are not increased so little additional revenue is collected from the added users of public facilities. This occurs because the marginal

to cover the increased cost.125/  In Case 8, public sector expenditure per person in the population served remains at the mean, but because private sector expenditure per person in the population served increases, public sector visits decline, which produces public cost savings.  This case also caused a reduction in revenues, but by a lesser amount than the savings.  Case 9 assumes increases in public sector price along with quality improvements, leading to a large increase in the cost of service provision.  Even though Case 9 generates increased revenue, the results is a significant net cost to the public sector (Table 5.17).  The increase in public sector expenditure per person in the population served and in marginal total cost simply swamp the large increase in revenue.

13.      Cases 10 through 13 deal with changes in public sector costs associated with changes in drug availability in the public and private sectors.  In Case 10, drugs from public and private health facilities are available only half the time; the frequency of public visits drops; and both total public sector revenues and costs fall significantly.  In this case, government accrues a net revenue gain, but effective health care declines.  Cases 11 and 12 (where drugs at public facilities are always available) have identical large visit increases, but the increase in usage drives up total public costs.  In both cases the increased costs exceed the increased revenues estimated.  In Case 13, drug availability stays at its mean value (while private drugs are always available) and the frequency of public sector visits does not change; both total revenue and total costs remain constant.

14.      Cases 14 through 17 use an index of the physical condition of public facilities as the operative policy variable.126/.  Changes in physical condition imply incremental cost changes that are a function of the number of facilities and the amount of money needed to improve the facilities, and also, marginal cost changes that are a function of the number of public visits.127/

15.      In Case 14, the condition of public facilities declines to "poor".  The resultant drop in spending per facility on quality produces a total cost saving.  This cost saving turns out to be larger than the cost

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125/ Specifically, the cost increase is N6,466,853.  This value was estimated in the following way.  In Ogun State in 1986, there were an estimated 2.85 million people.  They were served by 306 public facilities and 131 private facilities, for a total of 437 facilities.  Therefore, government served 70% of the entire population (306/437), or 1,993,265 people.  If COSTPU increases by N3.04, then 3.04 x 1,993,265 = +6,059,525 Naira.  This N6,059,525, caused by doubling COSTPU, is then added to the marginal cost of changes in quantity supplied of N407,328 (Table 5.16).

126/ 1=good, 2=fair, and 3=poor.

127/ The percent of public recurrent expenditures for "nonpersonnel" (other supplies, transport, maintenance and repair) was 8 percent in 1986.  With mean recurrent expenditures per facility of N70,313 mean expenditures on physical condition would be N5,625.  Mean public physical condition was 1.2867 (closer to "good" than to "fair").  To go from a condition of 1.2867 to 1.0 (Case 16) would require a 0.222818 percentage change, or going from a mean expenditure of N5,626 to a mean expenditure of N6.878.  Conditions 2 (fair) and 3

revenue from reduced visits: one way for the government to save money is to spend very little, provide poor quality care, and serve few patients -- clearly an unacceptable way to resolve budget problems in the health sector. In Case 15, both public and private sector condition improves to "good" and average facility condition increases from the mean. Incremental costs of this quality improvement are large. The frequency of public visits rises, and, as a result, marginal costs increase. In this case, total costs rise more rapidly than total revenue (see Table 5.17), leaving a net cost to the public sector. For this cost, however, more people are served and they receive improved care.

16.      Case 16 is somewhat similar to Case 14, except that the condition of private facilities remains at the mean. As with Case 14, the physical condition of public facilities in Case 16 declines and the frequency of public sector visits declines sharply; the private sector takes up most of the slack. Marginal volume costs decline more quickly than total gross revenue, creating a net surplus. In Case 17, the condition of public facilities remains at the mean, so costs remain constant. Because conditions in the private sector drop to "poor," the frequency of visits in the public sector increases, creating additional visit-volume costs. Total gross revenue increases more slowly than total costs, leaving a deficit.

17.      Cases 18 and 19 128/ explore the effect on public sector health costs and demand of sharp increases in all of the independent variables (including price). Case 18 assumes a doubled public sector price, a doubling in expenditure per person in the population served, high drug availability, and good facility condition. Public sector visits increase sharply, increasing marginal visit-volume costs.129/ The increase in drug availability combined with the change in the number of visits also boosts costs. Facility condition cost is the same as in Case 15. Total public sector costs increase much faster than the increase in total gross revenue and create a large loss. Case 19 is a slightly less ambitious permutation of Case 18 for the public sector. Total costs increase slightly less than in Case 18, but total gross revenue increases at an even slower rate than in Case 18, with the result that the total net loss is ₦4.8 million, versus a total net loss of ₦4.4 million in Case 18.

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128/ Cases 18 and 19 are included for the purpose of illustrating options. There may, however, be double counting which cannot be separated out and the data is crude, but the results do give an indication of the relative magnitudes.

129/ The in          in                    per          served      the      as in

NIGERIA: HEALTH CARE COST, FINANCING AND UTILIZATION

VI.   SUMMARY AND CONCLUSIONS

## Introduction

6.01      Nigeria has a commendably comprehensive National Health Policy
which recognizes that "Primary Health Care is the key to attaining the goal
of health for all the people." However, Nigeria's public health care
services have serious shortcomings. Ironically, demand is decreasing while
the number of potential users is rising. Staff do not adequately serve
rural areas; facilities suffer from poor maintenance; and most public
sector health care providers have few drugs for their patients. The report
examines these problems in the context of public sector spending while
noting that total health expenditure far exceeds this amount: individuals
spend money on pharmaceuticals and on traditional healers, and in addition,
the private sector is active at primary, secondary and tertiary levels.

6.02      After reviewing the context in which the national policies on
health and on population are being implemented, the comparative efficiency
of public and private facilities was examined in depth, using data from
Ogun State. Against this background, the household demand for health care
in Ogun State, from both private and public sources, was analyzed.
Opportunities for policy adjustment, including cost recovery, were then
developed. The report concludes that although the basic components may be
in place for an effective health care program, in Ogun State specifically
and in Nigeria in general, adjusting these components could provide a more
balanced and responsive program. To achieve its goal of "Health for All by
the Year 2000" the Government will need both to recognize the complementary
role of the private sector and to insure that limited public sector health
resources are used as efficiently as possible.

## A.   Health System

6.03      Despite the evident shortcomings, Nigeria's health system has
made great strides in improving access to health care, especially in
training and deploying health manpower. The number of doctors quadrupled
to 16,145 during 1975-87. The number of nurses tripled from 17, 904 to 56,
120, and of midwives more than tripled, from 13, 101 to 45,852. Hospital
beds almost doubled. The resulting ratio of health professionals to
population compares very favorably with ratios in countries with per capita
national incomes similar to Nigeria. The comparative data (for 1984) on
population per physician in Sub-Saharan Africa show Nigeria had about three
times the number of physicians as the regional average and twice the number
of nursing staff.

6.04      Many states have an adequate network of dispensaries, clinics,
health centers, maternities and hospitals (both public and private), at
least in the urban areas. Many of these facilities are relatively new and
have a sufficient complement of equipment, although not necessarily in a
good state of repair. But the health status of the population is not as
high as it could be, relative to the high level of past investment in the
sector.

## B. Health Status

6.05      Nigeria is the dominant country in Sub-Saharan Africa, yet it has health status indicators that place it on a par with many of its smaller, poorer neighbors. Given the past commitment of significant resources, such a finding is disappointing and emphasizes the task ahead. Comparative statistics show: 130/

(a)   Infant mortality in 1988 was higher in Nigeria (103 per 1,000 live births) than in Togo (92), and Ghana (88).

(b)   One quarter of Nigerian babies had low birth weights in 1985, a proportion notably higher than in a number of neighboring countries, among them Ghana (17 percent), Togo (20 percent), Benin (10 percent) and Niger (20 percent).

(c)   Life expectancy at birth for Nigerians of 51 years (in 1988) was average for Sub-Saharan Africa and shorter than life expectancy in Togo (53), Liberia (54), and Ghana (54).

## C. Health Problems

6.06      The generally low standard of health is related to the limited use of the health care services. The relevance of the emphasis on preventive care as stressed in the National Health Policy is borne out by the fact that an overwhelming number of deaths in Nigeria are due to readily preventable infectious and parasitic diseases, in particular measles, malaria, pneumonia and diarrhea. Childbearing women are especially at risk in Nigeria because of frequent pregnancies and closely spaced births beginning at a very young age and because of medically inadequate and hygienically inappropriate child delivery techniques. In addition, few mothers receive modern prenatal or postnatal care. Use of modern methods of family planning is very low.

6.07      Inadequate nutrition is a growing problem. In 1988, the average caloric supply available in Nigeria was only 94 percent of the minimum requirement, and it is thought to have worsened under the recent constrained economic conditions. 131/

6.08      The size of Nigeria's rapidly growing population places an added strain on the health sector. Nigeria has one of the highest rates of population growth in the world, estimated at around 3.2 percent per annum in 1985-90. By the year 2030 it could have the third largest population in the world, behind only China and India. Continued rapid population growth

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130/  World Development Report, 1990.

131/  World Development Report, 1990. In 1977, daily per capita calorie supply was estimated at 83% of requirements (World Development Report, 1980), 91% in 1981 (World Development Report, 1984) and 104% in 1982 (World Development Report, 1985).

will have negative consequences in a number of sectors, including agriculture, wood resources, employment, education and housing as well as health. The Government, in response to these concerns, launched the National Policy on Population in 1989. As part of the overall goal of improving the quality of life, the policy seeks to bring about continued decline in the mortality of mothers and children and a reduction in fertility. The increased provision of family planning services is seen as vital to the achievement of these goals. The public health sector has a major role to play, together with other health care providers.

## D. National Health Policy

6.09      In the remarkably frank policy document entitled, "The National Health Policy and Strategy to Achieve Health for All Nigerians" (1988), the Federal Ministry of Health has identified what it sees as the major defects in the health services, including an urban bias, disproportionately high investment in curative services, poor coordination between the public sector and other health care providers, minimal involvement of the community, limited statistics, inadequate financial resources, poor maintenance, and lack of medical supplies and drugs. This report goes one step further to analyze the net result: lack of patients. It then suggests ways to attract them back.

## E. Financing

6.10      One underlying reality that exacerbates Nigeria's health care problems is the decreasing availability of public funds at the federal, state and local levels. State and local spending in Nigeria is highly dependent on federal aid, but the Federal Government itself is highly dependent on oil revenue. The downturn in the oil market in the 1980s seriously reduced the resources available for public spending to the more modest levels of the 1970s. Allocation of funds to the public sector has fallen sharply: the federal health budget (recurrent and capital) in 1990 was only 40 percent in real value that of 1981. This squeeze is felt down through the system, so that states and local governments will likely have experienced a similar reduction in real resources for health care. By comparison, the total actual federal budget in 1990 was over 90 percent of the real value of 1981, indicating how the health sector has been cut back relative to other parts of the Federal Government. External agencies have tended to overlook Nigeria, with the result that outside assistance for health and population is very small. In 1986, it was estimated at less than $13 million, or $0.12 per capita (see Annex V.)

6.11      Examination of the state and local data for the early 1980s shows that expenditure on nonrecurrent costs (such as maintenance, medical supplies and drugs) has been cut back to the barest minimum, while personnel costs have increasingly dominated recurrent outlays.

6.12      Falling oil revenue helps to explain the fiscal crisis in Nigeria's public health sector at a macro level. At the micro level, the sector faces a woefully inadequate system of cost recovery. Lacking

resources, especially drugs, the sector provides a poor level of service, despite the availability of trained staff. 132/

6.13    Low prices also send the wrong signals to health care consumers. Many people seek treatment for minor health problems at hospital outpatient emergency rooms rather than at clinics, because facilities have a weak signaling system for referrals, and patients are drawn to where supplies are most likely to be found. 133/

F.    Ogun State

6.14    This report concentrates on Ogun State and treats it as a paradigm for the Nigerian health system. This stems from the fact that the Federal Ministry of Health has given the Bank access to the results of an unusually thorough and comprehensive survey of health care facilities and consumers that took place in the State in 1987. 134/  While Ogun State residents possibly enjoy relatively more social amenities such as schools, roads and health care than residents of some Nigerian states because of their close proximity to Lagos, the State is not exempt from the fundamental problems noted.

6.15    In the urban areas of Ogun State, private health facilities outnumber public ones. In fact, 82 percent of private health facilities are located in urban areas, and 57 percent of urban health facilities are privately owned. Government care providers tend, but not exclusively so, to locate in rural areas where private care providers are fewest. Almost 75 percent of public care institutions are rural. Although Ogun State's urban/rural population ratio is 30:70, about 44 percent of all facilities are in urban areas while 56 percent are rural. This implies that urban residents enjoy a bias in their favor in the distribution of health facilities in Ogun, a situation typical of Nigeria and other developing countries. Compounding this inequity are the poor state of rural roads and the lack of reliable motor transport to rural areas. Rural residents who require more than primary care thus have to pay more money to travel longer distances in less comfort and safety than urban residents.

6.16    Considering that the private sector owns only 30 percent of all health facilities in Ogun State, it has had great success at attracting doctors. Roughly half of all doctors work in private sector jobs. One explanation for this disparity may be double counting, because it appears

132/ Although in urban areas drugs can be readily purchased in the market place, this still does not encourage use of facilities, but rather helps to account for the high percentage of "self treatment".

133/ In the Ogun State survey of households, for those who sought treatment at a facility, 28% went first to a government hospital and 27% to a primary health care center or dispensary.

134/ The study was undertaken by African Health Consultancy Services, Ltd., Lagos.

that many publicly employed doctors also have private practices, especially in urban settings. 135/ The ratio of public to private sector employees in other job categories is more in line with the 70:30 ownership rat.o: among nurses and midwives (66:34) and support staff (61:39). The ratios get skewed again for community and public health workers (95:5) and pharmacists (83:17). The State Government, which owns only 10 percent of the health facilities in the state, employs 46 percent of the health personnel. The private sector owns about 30 percent of facilities and employs roughly the same proportion of health workers (31 percent). The LGAs manage 50 percent of all of Ogun's health facilities but employ only 20 percent of its health workers. 136/ This is not surprising, since LGA-owned dispensaries are very lightly staffed. Finally, the Federal Government employs only 1 percent of Ogun's health workers.

6.17     Using the relatively abundant information available on Ogun State, the report analyzes the efficiency of the state's health care sector, both public and private, the structure of health care demand, and the current and hypothetical levels of statewide health sector cost recovery. The analysis explores ways to improve the sector's efficiency from the point of view of public health policymakers at both the state and federal levels.

G.     The Analysis

6.18     The financing of health care was examined from two aspects: the demand for care and the supply of it. First, consumers' demand for health care was examined, against their socioeconomic characteristics, and preference for private care, public care or self treatment. Second, from the perspective of the facilities, the efficiency of service provision was examined, comparing the public and the private, to see whether there were any significant cost differences, and if so, what were the key explanatory variables. Also, costs of services were estimated. Putting the two parts together, simulations were run to assess the effect on health care usage of various changes: in price, in condition of facility, in investment per patient served, and in availability of drugs. By combining the information on consumers' preferences for public and private care, and the cost of providing care in public and private facilities, the likely effects of various combinations of policy adjustment-- in both the public and the private sector -- can then be assessed. These are summarized in the discussion below.

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135/ Although Ogun State in 1986 had 185 registered doctors (87 in the public sector and 98 in the private) the survey results reported 382 doctors (191 each in the public and private sectors.)

136/ This will shift under the 1990 changes in LGA responsibilities.

1.  Households 137/

    (a) Data

6.19    Using a sample of 4,900 household interviews with over 22,000 individuals, and 1,763 adults 138/ who reported an illness in the four weeks prior to the survey, an assessment was made of how people seek care. As the focus of the study was to assess the utilization of facilities, the basic sample was drawn from patients selected randomly at facilities (both public and private), with interviews carried out at their homes; to obtain a random sample of other households with access to facilities, interviews were also conducted with the neighbors of two of each five interviewed patient households.  For the actual demand estimates, the choice-based 139/ methodology was used to weight the choice-based and neighbor samples to create a combined representative sample of potential users, making the results representative of the population of potential facility users.

6.20    The sample analyzed was relatively urbanized (57 percent), half (49 percent) had no formal education, and more than half (56 percent) were too old or too young to work, but around half (52 percent) of household members were employed, and earnings were generally very low.  Christians outnumbered Muslims (53 percent vs. 46 percent).  Sanitary and health conditions were somewhat deficient.  One quarter of the sample (27 percent) had piped water in their home; 43 percent used water from unpiped sources such as ponds, springs, tankers and rivers.  A quarter of the sample used flush toilets (24 percent); most used pit latrines (63 percent).

6.21    With the generally low level of earnings, the lowest three income quintiles reported monthly earnings below ₦100.  The highest income group (with monthly earnings of ₦200 and above) accounted for 9 percent of the sample.  Surprisingly, self-reported health status differed little by income group.  The most obvious differences occurred in the poorest group. Although only 1.7 percent of the poorest quintile said they were in poor health, this figure was almost double the percentage of any other income group.  Of the total sample, 4 percent reported they were in excellent health, and 19 percent in fair/poor health.

6.22    The most important indicator of differences in health care use by income group was the extent to which those who were ill sought outside care: one-third of the lowest income group sought no outside help, compared with only one-fifth of the highest income group.  The majority of the lowest income groups seeking health care went to public health facilities, with higher income groups making greater use of private facilities. However, the more wealthy groups do not avoid public facilities: over half

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137/ Chapter V, Part B.

138/ Children and pregnant women were excluded from the illness analysis.

139/ Chose to use a health facility.

of the highest income group who used a facility sought help at a public clinic/maternity/hospital.

6.23    The behavior of the 1,763 nonpregnant adults who reported an illness in the four weeks prior to the survey was analyzed. (Intrahousehold analyses was omitted and the survey focused only on adult behavior.) Of the sample reporting illness, for the first treatment 68 percent headed to a public facility (28 percent to a hospital, 27 percent to a clinic, 8 percent to a maternity, and 5 percent to a comprehensive health center) and 23 percent to private facilities (12 percent to a hospital, 7 percent to a clinic and 4 percent to a maternity), with the balance seeking first treatment at a pharmacy (5 percent), traditional healer or spiritualist (5 percent). The use of maternity facilities for primary health care by nonpregnant adults is notable. At least 57 percent of preventive/primary care offered at maternities covered immunizations and health education. Another 35 percent covered prenatal and postnatal care.

### (b) Methodology

6.24    A model was estimated assuming that the choice of health care is a function of the price and quality of the care; sex and education of the patient; wealth and income and location of the household; and type and seriousness of the illness. The price used was the outpatient registration fee, as this was considered to best reflect the price patients consider when deciding whether and where to go for treatment. Quality was derived from the facility operational costs per capita, together with observations on the physical condition of the facility and the availability of drugs. Income entered the model as a control for tastes and preferences, but income interactions with other variables -- such as price -- were not included in the final estimated model because they did not prove to be statistically significant. Various asset measures were tested, and eventually vehicle ownership proved to be a good variable for classifying households by wealth status. The income variable differentiates the income poor, who appear to behave differently from the other income groups in selecting health care, and the wealth variable appears to differentiate those with high incomes (that is, those who can afford vehicles). The illness symptoms that were eventually included were a combination of "stomach pains or diarrhea." These symptoms are ones for which primary health care would appear to be appropriate. The severity of illness was measured by number of sick days, and variables for urban or nonurban residence, education level and sex of the ill person, were included.

### (c) Results

6.25    The results strongly support the view that price and quality affect health care choices and that higher prices can be offset by higher quality. Given equal prices and identical tastes, not surprisingly people prefer health facilities which have a higher investment in care and higher drug availability and are also in better condition. The wealthy (e.g., those who own a vehicle) seek the most medical care. Urban residents, females and the more highly educated prefer private medical care.

6.26     Simulations were carried out by changing independent variables to determine their hypothetical effect on health care choices for the community with access to facilities. The results indicated that an individual with sample mean values for all variables (including illness symptoms) and facing mean prices and quality for each facility choice, will choose self treatment about half of the time (52 percent), public care one third of the time (35 percent), and private care for the balance (13 percent).

6.27     Price simulations showed that the impact of prices in the selection of health care choices was statistically significant. That the impact is not large is shown by the fact that even charging nothing for health care evidently would not drastically change care choices, nor would doubling health care prices change usage patterns appreciably. Increased investment in health care by both public and private sectors would appear to have a greater impact on public sector usage, with a large movement out of self-care (i.e. "no consultation").

6.28     The key role played by drug supply in attracting patients was emphasized by the simulation results. Availability of drugs apparently affects private sector usage more than public. With the availability of drugs reduced to only half the time at both types of facilities, the simulations predicted a large outflow of users into self-care, particularly from private facilities. Similarly, if physical condition deteriorated for both, there would be a similar outflow to self-care. A final simulation suggested that reasonable price increases combined with reasonable quality improvements would produce a large increase in public sector usage.

6.29     The simulations oversimplify the ease with which the quality/price trade-off can be implemented, but two basic conclusions can be drawn. First, if revenues from higher prices at public facilities were used to increase care quality, usage of those facilities (and of modern formal care in general) might well increase. Second, the quality levels needed are not unreasonably high; the levels used were a combination of continuing present public facility spending levels in general and increasing drug availability and the quality of facilities to the level now evident in the private sector. However, as quality improvements can be costly, there is a need for careful selection.

6.30     With respect to private facilities, in the simulated case where the public sector maintained its mean price per visit and the private sector doubled its price, no consultation/self treatment increased sharply and there was a small increase in public sector visits, indicating limited price competition between public and private facilities. This suggests that there is only modest scope for significant price increases in the private sector, even given the limited competition from the public sector. 140/

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140/ Whether the private sector could increase profits by a strategy of higher prices and commensurately higher quality was not addressed in the study, but raises a question for future research.

## 2. Facilities 141/

### (a) Data

6.31     Turning to the facilities themselves, an inventory of the 445 modern health care facilities in Ogun State was undertaken, with a detailed survey of 86 of the facilities to collect information on utilization, costs, revenues and cost-recovery programs.  This data set provided an unusual opportunity to compare public and private facilities and included for-profit and not-for-profit facilities and facilities with and without inpatients.  A surprising observation was that the majority of facilities failed to record a minimum acceptable efficiency level of 600 visits per year per health worker.

6.32     An examination was made of the financial status of public and private providers.  The analysis was restricted to small hospitals and maternities due to limitations on the data.  As expected from the aggregate data in Chapter III, personnel costs dominated the budgets.  In 1986, personnel costs were 70 percent and 82 percent of public hospital and maternity recurrent costs respectively.  In private hospitals and maternities, personnel accounted for 57 percent and 60 percent of recurrent costs.  Drugs contributed the largest share of nonpersonnel recurrent costs.  In 1986, private hospitals and maternities spent more of their recurrent costs on drugs (26 percent and 21 percent) than similar public facilities (1. percent and 10 percent).  Private hospitals and maternities spent 17 to 18 percent of their recurrent budgets on nonpersonnel, nondrug items, compared with 5 to 8 percent for the public sector facilities.  This spending pattern is consistent with observations of health facilities in many other developing countries where inputs complementary to personnel are lacking and drug supplies inadequate.

6.33     Revenue sources were predictably mostly government for the public sector, and mostly cost recovery for the private.  For example in 1986 public maternities received 74 percent of revenue from government, and private maternities 82 percent from cost recovery.  As Nigeria's current economic situation has squeezed both government budgets and household incomes, both publi: and private facilities are experiencing financial hardship.  This was apparent from the profit figures.  In 1985 private maternities on average earned only small profits (5 percent), which had turned to losses (minus 13.5 percent) in 1986.  This weakening of the financial status of the private sector reinforces the need for coordination between the public and private sectors to avoid duplication of services.

6.34     A comparison of the fee structure of public and private facilities highlighted two issues.  The first is that fees at private sector facilities are higher than at public but the magnitude is not consistent.  The second is that lower level facilities, both public and private, do not necessarily have lower fees, which will confuse efforts to establish effective referral systems.

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141/ Chapter V, Part A.

(b)  Analysis and Results

6.35      Analyzing the technical and economic efficiency of health care
facilities in general, defined as a combination of staff (health workers
and non-health workers), beds, and quality of care (measured by
availability of drugs), the cost structure of health care service provision
was determined.  From these findings marginal costs, average costs, and
economies of scope and scale were calculated.  The results showed all
inputs were positively related to the number of visits produced, with an
elasticity of scale measure of 17.09 indicating that if, say, all inputs
were increased by 1 percent, there would be a 17 percent increase in
output.

6.36      Analysis of the cost function, which included wages, outputs,
quality, and an inefficiency measure (estimated from the production
function), showed that facilities are generally operating on the downward
portion of their average cost curves, especially for admissions. There are
short-run increasing returns to scale for inpatient and nearly constant
returns for outpatient services.  For inpatient services, facilities are
operating under capacity, with high fixed costs distributed over relatively
few admissions.  Low bed occupancy rates are consistent with these trends
in average costs.  Increased availability of drugs and other supplies would
shift average and marginal costs curves upwards, but utilization would also
increase such that the minimum portion of the average cost curve could be
reached.

6.37      A comparison of the relative productivities of workers indicated
that in public facilities too many non-health workers support too few
health workers.  Private facilities were more efficient in their staffing
mix.  This suggests a careful review is needed of the effect of the
suggested changes in staffing patterns on quality of care.

6.38      The economies of scope measure shows that there are no sizable
advantages to combining inpatient and outpatient services by offering these
services together.  Overall expenditures, therefore, remain constant or
increase slightly.  Since outpatient services appear to be less affected by
undercapacity, the fungibility of various types of health workers should be
explored, with the transfer of personnel from inpatient to outpatient care.

6.39      The ability to examine, recommend, implement and evaluate
strategies to improve resource allocation within the health sector is
limited by the data available.  The type of cost data required for
analyzing efficiency is, however, rather simple:  basic inventories of
personnel and accurate measures of health service utilization.  A sample
format for data collection is provided at Annex I.

### 3. Strategies for Cost Recovery 142/

6.40     The results of assessing wh~t people do when sick and how much it costs to provide health care facilities can be combined in simulations of possible cost recovery strategies.  The Government, wishing to ensure adequate access to health care and to provide some segment of the population with subsidized health care, faces the dilemma of fostering efficient production and consumption of curative health care services within its own institutions, along with preserving its equity objectives as much as possible.  A set of first principles for a cost recovery program has been laid out to assist policymakers in defining such a system of prices (Annex R).

6.41     Using the probabilities of seeking care (developed in Chapter V, Part B), and the cost of providing it (from Chapter V, Part A), various combinations of changes in prices and quality were simulated in an effort to identify the "best" strategy for public policy.  But first a definition of "best" has to be agreed upon.  Is the government attempting to maximize the frequency of visits to modern health care facilities, on the grounds that it is presumably more technically efficient if a person has formal health care rather than self-care when that person experiences an episode of illness?  If so, maximizing visits to any modern health care facility versus maximizing visits to public sector facilities provides a further alternative.   Then the cost of achieving such levels of care has to be factored in.

6.42     The results from Ogun State show that more intensified cost recovery in the public health care sector is an objective both desirable and achievable.  Simulations of price variations, with changes in the public and private prices, suggest that cross-price elasticity of demand between the public and private sector is low, holding other policy variables constant.  Changes in public and private sector quality of care with no unit price variation produced increases in the frequency of visits: when the public sector doubled its mean, and the private sector held its quality level at the mean or increased it, public sector visits -- and gross public sector revenue -- increased.  Further simulations were undertaken with variations in public sector drug availability and physical condition and different private sector reactions.  An extreme scenario of the effect on public sector health costs and demand of sharp increases in all of the independent variables (including price) showed an increase in visits, but costs increased faster than revenues.  This highlights the need for carefully identifying the key variables and their relative costs and targeting improvements selectively.

6.43     Assuming that the government wishes to maximize total (public and private) visit-frequency or public-only visit-frequency but avoid sustaining losses, the surprising result is that the two simulated scenarios which maximize visits do not include the changes in quality which both the theoretical and anecdotal information deem to be so important for

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142/ Chapter V, Part C.

a successful cost-recovery program. However, once these static results are reviewed over time, the level of demand for public health care shifts as a result of the quality changes financed by the increased investment. Thus the increased investment then sustains an increased demand. This outcome is consistent with the predicted results.

## 4. Recommendations

(i)      Improve cost recovery through higher fees consistently applied. The overwhelming message from the analysis of the Ogun State data is that higher fees at public sector facilities will only marginally discourage potential users. And, assuming that more funds are available to purchase supplies, to maintain equipment, and to build an adequate inventory of drugs, usage will likely increase despite the higher fees. Increased funds would then be available for sustaining the improvements. Maintenance of a simple nationwide Management Information System is fundamental for assessing the impact of investment on health care usage.

(ii)      Protection of the very poor. Even if usage of needed health care by the poor were not greatly affected by fee increases, the financial burden on the poor of paying the fees would be important. Along with any move to increase charges for health care, therefore, Nigeria should put into effect measures designed to reduce the financial impact of such charges on the poorest people. The most obvious approach would be directly to identify those who are poor and either exempt them from charges or subsidize them. 143/

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143/ Possible approaches to identification of the poor actually in use in developing countries, each with its own practical problems, include certification by citizen committees or local officials; charging small amounts or nothing for "no-frills" levels of room and board in hospitals but full cost for less crowded rooms, better food, etc.; or subsidizing care for specific population groups (for example, infants and pregnant women) or regions of the country. Another possibility is a self-declaration system with specific income and wealth standards. Those who declared themselves qualified would be accepted as qualified for subsidies, and random (or other) audits, with relatively severe penalties for false declaration, could help to dissuade abuses. As income data from tax records and other information become better and more available, identification of the poor should become more precise and fee systems could be designed to vary by income levels. Meanwhile, in the absence of a means-testing approach, the only alternatives are to charge everyone equally or to charge no one (really the same as the first alternative except the premium is set at zero). Charging everyone the same positive price tends to be unfair to the poor, and the alternative of making health care free has the added problems of (a) failure to raise revenues to pay for the cost of the services used; (b) providing no monetary disincentives to overuse of the health care system; and (c) being regressive, in that those who are able to pay (the relatively well off) have their health care paid for by taxpayers (the average taxpayer generally being relatively poor).

(iii)     Encourage fee collection through retention at site.  Given that
the bulk of recurrent budgets at both state and local levels is now
invested in personnel, little is available for the improvements in quality
sought by the public.  The Federal Government has recognized the need to
adjust the balance in recurrent spending and has issued guidelines spelling
out a goal of a maximum of 60 percent of recurrent expenditure on
personnel.  Achievement of such a goal would increase the availability of
funds for maintenance and supplies.  The investment of funds in the
facilities themselves could be supported by permitting some retention of
fees at the sites (for investment and/or incentive payments).

(iv)     Ensure an adequate supply of drugs.  When addressing quality of
facilities in Nigeria, the provision of drugs is most often mentioned as a
key variable.  In the data on Ogun State, which launched a Drug Revolving
Fund program in 1984, a relatively high proportion of users were provided
with drugs at public facilities (between 73 and 87 percent).  However, this
was still significantly below the proportion at the private facilities (92
percent).  It is recommended that efforts to provide safe and affordable
drugs through public health facilities be strengthened.  The approval of
the National Essential Drugs Policy and implementation of the National
Essential Drugs Project have initiated activities to address this acute
problem.  For sustainability, drug revolving funds need to be based on a
transparent payment system: a cash-and-carry system with reimbursement for
the poor can greatly reduce administrative problems.

(v)     Strengthen the referral system through clear price signaling.
For efficient service, a patient should generally work up through the
system via referral.  However, lower level facilities, in both the public
and private sectors, do not necessarily have lower fees; for initial
treatment in Ogun State, over one quarter of all respondents visited a
public hospital for the first consultation.  These findings highlight the
weak price signaling of the referral system and contribute to the poor
cost-effectiveness of the health care providers (See Annex R).

(vi)     Reduce the share of recurrent costs spent on personnel.  The
analysis of resource flows in Chapter III showed the high percentage of
recurrent budgets at federal, state and local levels spent on personnel.
Analysis of facility budgets in Ogun State (Table 5.2) shows a similar
picture, which is especially true in the public sector:  in 1986, personnel
costs were 79 percent and 82 percent of public hospital and maternity
recurrent costs respectively, compared to 57 percent and 60 percent for the
same facilities in the private sector.  Allocative efficiency analysis of
the Ogun State data indicates that public facilities are not using cost-
minimizing staffing combinations.  The public sector appears to employ too
many support staff relative to health workers and should consider employing
more health workers and/or laying off support staff.

(vii)     Coordinate public and private health sector supply.  The
investigation of the health care sector in Ogun State suggests that neither
the public nor the private providers are operating at efficient levels.

They are offering similar services and in some cases using the same staff. The result is duplication of services and higher costs than necessary. As noted in the National Health Policy, coordination with nongovernmental providers is recommended. Such coordination could include recognition of a useful division of activities, with the private sector concentrating on provision of curative care and the public sector on promotive and preventive care, which are already their self-selected directions. This would enable the public sector to focus its limited resources and provide improved services. Some form of support for private sector patients might be required. 144/

(viii)    Establish effective management information systems  In order to evaluate, implement and monitor adjustments in health policies, basic data needs to be regularly collected and analyzed. The type of data required is simple: basic inventories of personnel and accurate measures of health service utilization (see Annex I).

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6.44    This report has attempted to investigate issues and opportunities in the health care sector of Nigeria. The period analyzed is the mid-1980s. Recognizing the strength of the sector, the weaknesses in delivery, the diminution of resources and the growing needs of the people, continued adjustments in the operating approach and reallocation of resources are needed. The system currently is being reoriented toward more accessible primary health care, with increasing emphasis on preventive and promotive services. It is hoped that this report provides some insights into further opportunities for policymakers seeking to achieve the goal of "Health for All by the Year 2000."

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144/ In addition, the strong role of traditional healers suggests collaboration with them as well, as noted in the National Health Policy. Their influence in promoting health programs such as nutrition, environmental sanitation, family planning and safe motherhood could be further developed to the general benefit of the public. Various options for collaboration between traditional and Western medicine exist, including licensing and training, supply of drugs and equipment, and sharing of information. Including traditional birth attendants in maternal and child health care programs can greatly increase service coverage. The range of options

# BIBLIOGRAPHY

Abel-Smith, B. 1989. "Health Economics in Developing Countries." Journal of Tropical Medicine and Hygiene 92:229-41.

Acton, J. P. 1973. Demand for Health Care When Time Prices Vary More than Money Prices. Santa Monica, CA: The Rand Corporation.

Acton, J. P. 1975. Nonmonetary Factors in the Demand for Medical Services: Some Empirical Evidence. Journal of Political Economy. 83:595-614.

Akin, J. S. 1986. "Equity for the Poor." World Health: The Magazine of the World Health Organization (May):28-29.

Akin, John C., Nancy Birdsall and David De Ferranti. 1987. Financing John Health Services in Developing Countries: An Agenda for Reform. Washington, D.C.: World Bank.

Akin, J. S. and B. Schwartz. 1986. "Demand Analysis with Price Information Obtained Directly from Respondents." World Bank, Population, Health and Nutrition Technical Note 86-22 (June):1-24.

Akin, J. S., and B. Schwartz. 1988. "The Effect of Economic Factors on Contraceptive Method Choice in Jamaica and Thailand: A comparison of Mixed Multinomial Logit Result." Economic Development and Cultural Change 36(3).

Akin, J. S., C. C. Griffin, D. K. Guilkey, and B. M. Popkin. 1986. "The Demand for Primary Health Care in the Bicol Region of the Philippines." Economic Development and Cultural Change 34(4):755-82.

_____. 1986b. "The Demand for Adult Outpatient Services in the Bicol Region of the Philippines." Social Science and Medicine 22(3):321-28.

_____. 1985. The Demand for Primary Health Care in the Third World. Totowa, NJ: Littlefield, Adams.

_____. 1985b. "Determinants of Infant Feeding: A Household Production Approach. Economic Development and Cultural Change 34(1):57-81.

Akin, J. S., D. K. Guilkey, and B. M. Popkin. 1981. "The Demand for Child Health Services in the Philippines." Social Science and Medicine 15:249-57.

Anderson, D. L. 1980. "A Statistical Cost Function Study of Public General Hospitals in Kenya."

Atkinson, S. E. and R. Halvorsen. 1984. "Parametric Efficiency Tests, Economies of Scale, and Input Demand in the U. S. Electric Power Generation." International Economic Review 25:647-62.
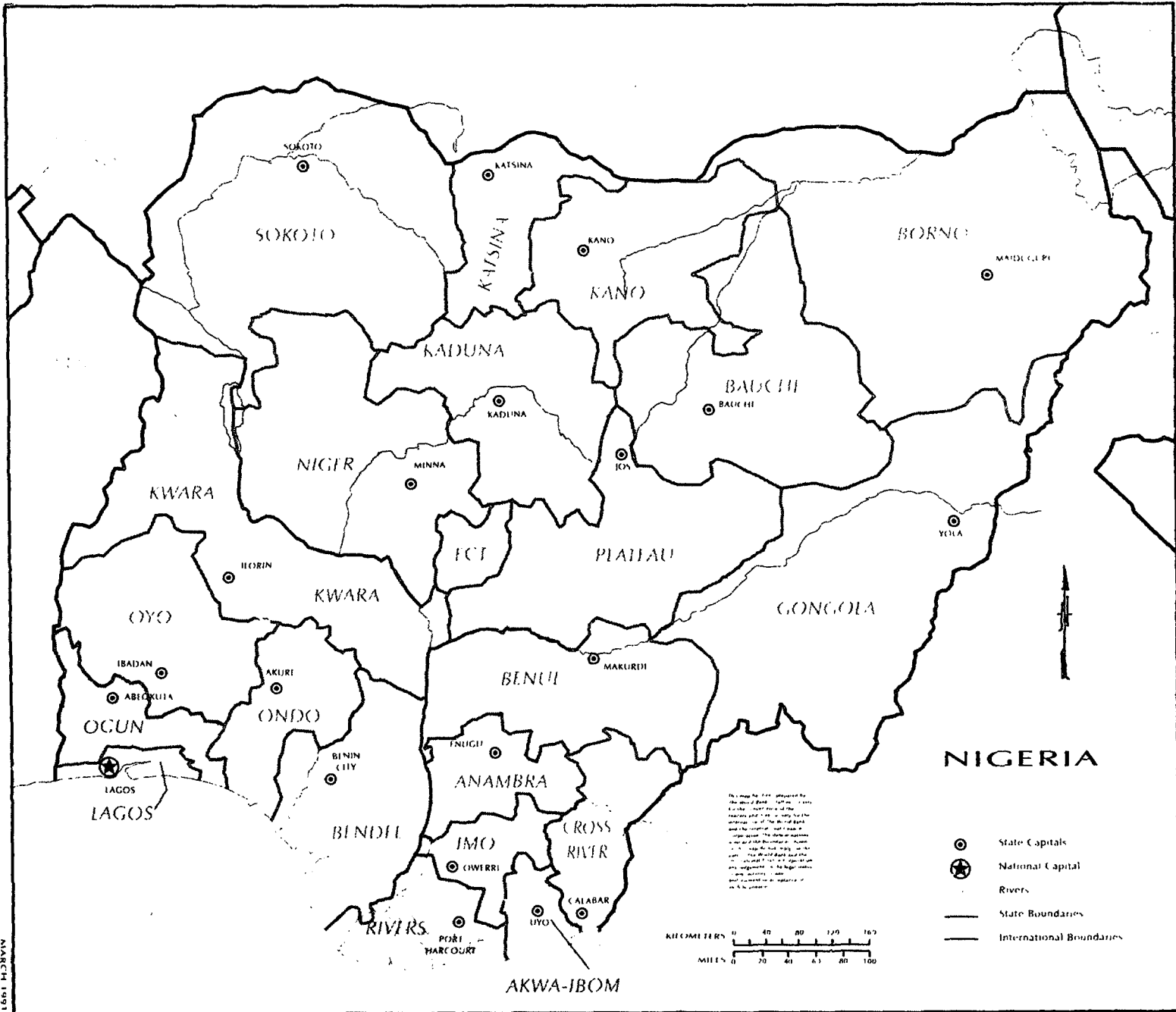
Bailey, E. E. and A. F. Friedlander. 1982. "Market Structure and Multiproduct Industries." _Journal of Economic Literature_ 20:1024-48.

Birdsall, Nancy. 1987. _Strategies for Analyzing Effects of User Charges in the Social Sectors_. PHN Technical Note 87-1. Washington, D.C.: World Bank.

Bitran-Dicowsky, R. and D. W. Dunlop. 1987. "The Determinants of Hospital Expenditures: An Analysis of Ethiopia." September. Mimeo.

Blair, Roger D., P. B. Ginsburg and R. J. Vogel. 1975. "Blue Cross-Blue Shield Administrative Costs: A Study of Non-Profit Health Insurers." _Economic Inquiry_ 1?:237-51.

Brown, R. S., D. W. Caves and L. R. Christensen. 1982. "Estimating the Structure of Costs and Production for Multiproduct Firms." _Southern Economic Journal_ 46:256-73.

Caves, D. L., L. R. Christensen and M. Tretheway. 1980. "Flexible Cost Functions for Multiproduct Firms." _Review of Economics and Statistics_ 62:477-81.

Cowing, T. G. and A. G. Holtmann. 1983. "The Multiproduct Short-Run Hospital Cost Function: Empirical Evidence and Policy Implications from Cross Section Data." _Southern Economic Journal_ 4:637-53.

Cowing, T. G., Holtmann A. G., and Powers S. 1983. "Hospital Cost Analysis: A Survey and Evaluation of Recent Studies. In _Advances in Health Economics Research_. Ed. Scheffler and Rossiter. Connecticut, Vol. 4, pp. 257-303.

Danzon, Patricia. 1982. "Hospital 'Profits': The Effects of Reimbursement Policies." _Journal of Health Economics_ 1:29-52.

De Ferranti, David. 1985. _Paying for Health Services in Developing Countries: An Overview_. World Bank Staff Working Paper, no. 721. Washington, D.C.: World Bank.

DeJong, J. 1989. "Traditional Medicine in Sub-Saharan Africa: A Review of Its Importance and Potential Policy Options."

Dor, A., P. Gertler, and J. van der Gaag. Forthcoming. "Nonprice Rationing and the Choice of Medical Provider in Rural Cote d'Ivoire." _Journal of Health Economics_.

Dor, A. 1988. "The Marginal Costs of Medicare Patients in Nursing Homes." Working Paper 3586-04. Washington, D.C.: The Urban Institute.

Eakin, B. K. and T. J. Kniesner. 1988. "Estimating a Non-Minimum Cost Function for Hospitals." _Southern Economic Journal_. January.

Feldstein, Paul J. 1988. _Health Care Economics_. 3d ed. New York, N.Y.: John Wiley and Sons.

Fournier, G. M. and J. M. Mitchell. 1988. "Hospital Costs and Competition

Frank, R. G. and C. A Taube. 1987. "Technical and Allocative Efficiency in Production of Outpatient Mental Health Clinic Services." Social Science and Medicine 24:843-50.

Gertler, P., L. Locuy, and W. Sanderson. 1987. "Are User Fees Regressive?: The Welfare Implications of Health Care Financing Proposals in Paris." Special issue of the Journal of Econometrics 36:67-88.

Gertler, Paul and J. van der Gaag. 1988. Measuring the Willingness to Pay for Social Services in Developing Countries. LSMS Working Paper, no. 45. Washington, D.C.: World Bank.

Goldman, F. and M. Grossman. 1978. "The Demand for Pediatric Care: An Hedonic Approach." Journal of Political Economics 86:259.

Goldman, F. and M. Grossman. 1983. "The Production and Cost of Ambulatory Medical Care in Community Health Centers." In Advances in Health Economics and Health Services. Ed. Scheffler and Rossiter. Connecticut, Vol. 4, pp. 1-56.

Granneman, T. W., R. S. Brown and M. V. Pauly. 1986. "Estimating Hospital Costs: A Multiproduct Output Analysis." Journal of Health Economics 6:107-28.

Grossman, M. 1972. The Demand for Health: A Theoretical and Empirical Investigation. National Bureau of Economic Research Occasional Paper 119. New York: Columbia University Press.

Heller, P. S. 1976. A Model of the Demand for Medical and Health Services in West Malaysia. Discussion Paper 62. Center for Research on Economic Development. Ann Arbor: University of Michigan.

Holtman, A. G. 1972. "Prices, Time and Technology in the Medical Care Market. Journal of Human Resources 7:179.

Holtman, A. G. and E. O. Olsen. 1976. "The Demand for Dental Care: A Study of Consumption and Household Production. Journal of Human Resources 9:546.

Jimenez, Emmanuel. 1987. Pricing Policy in the Social Sectors: Cost Recovery for Education and Health in Developing Countries. Baltimore, Md.: Johns Hopkins University Press.

Joseph, H. 1971. "Empirical Research on the Demand for Health Care." Inquiry 8:61.

Leibowitz, A. and B. Friedman. 1979. "Family Bequests and the Derived Demand for Health Inputs." Economic Inquiry 17:419.

McFadden, D. 1973. "Conditional Logit Analysis of Qualitative Choice Behavior." in P. Zarembka (ed.), Frontiers in Econometrics. New York: Academic Press.

Maddala, G. S. ?date. "Limited Dependent and Qualitative Variables in Econometrics." Econometric Society Magazine, Cambridge University.

Menzel, Paul J. 1983. _Medical Costs, Moral Choices_. New Haven, Conn.: Yale University Press.

Mitchell, J. M. and G. M. Fournier. 1988. "Does Competitive Entry Lead to Higher Costs in the Hospital Industry?" March. Mimeo.

Mwabu, G. M. 1989. "Referral Systems and Health Care Seeking Behavior of Patients: An Economic Analysis." _World Development_ 17:85-92.

Oppong, A.C.K. 1989. "Healers in Transition." _Social Science Medicine_ 28:605-12.

Palmer, Hans C. and Ronald J. Vogel. 1985. "Models of the Nursing Home." In _Long Term Care: Perspectives From Research and Demonstrations_. Ed. Ronald J. Vogel and Hans C. Palmer. Rockville, Md.: Aspen Press.

Pauly, Mark V. and M. Redisch. 1973. "The Not-For-Profit Hospital as a Physician's Cooperative." _American Economic Review_ 63:87-99.

Phelps, C. E. and J. P. Newhouse. 1974. "Coinsurance, the Price of Time, and the Demand for Medical Services." _Review of Economic Statistics_ 56:334.

Reinhardt, Uwe. 1972. "A Production Function for Physician Services." _Review of Economics and Statistics_ pp. 55-66.

Samuelson, Paul A. 1954. "The Pure Theory of Public Expenditure." _Review of Economics and Statistics_ 36:387-89.

Schmidt, P. 1986. "Frontier Production Functions." _Econometric Reviews_ 1985-1986 4:289-328.

Schwartz, J. B., J. S. Akin, and B. M. Popkin. 1988. "Price and Income Elasticities of Demand for Modern Health Care: The Case of the Infant Delivery in the Philippines." _World Bank Economic Review_ 2(1):49-76.

Terza, J. V. 1985. "Reduced-Form Trinomial Probit: A Quantal Response Model Without A Priori Restrictions." _Journal of Business and Economic Statistics_, 3(1):54-59.

Thobani, Mateen. 1983. "Efficiency and Equity Implications of User Charges in Social Sector Services: The Financing of Education in Malawi." World Bank Staff Working Paper, no. 572. Washington, D.C: World Bank.

Toda, Y. 1976. "Estimation of a Cost Function When the Cost is Not Minimum: The Case of Soviet Manufacturing Industries, 1958-1971." _Review of Economics and Statistics_ 58:259-68.

Vogel, Ronald J. 1977. "The Effects of Taxation on the Differential Efficiency of Non-Profit Health Insurance." _Economic Inquiry_ 15:605-9.

Vogel, Ronald J. 1988. "Cost Recovery in the Health Care Sector: Selected Country Studies in West Africa." World Bank Technical Paper, no. 82. Washington, D.C.: World Bank.

Vogel, Ronald J. 1989. "Trends in Health Expenditures and Revenue Sources in Sub-Saharan Africa." Monograph prepared in conjunction with the World Bank Sub-Saharan Africa Health Policy Study. March 1. Mimeo.

Vogel, Ronald J. and B. Stephens. 1989. "Availability of Pharmaceuticals in Sub-Saharan Africa: Roles of the Public, Private and Church Mission Sectors." Social Science and Medicine 29:479-86.

Waddington, Catriona J. and K. A. Enyimayou. 1989. "A Price to Pay: The Impact of User Charges in Ashanti-Akim District." International Journal of Health Planning and Management 4:17-47.

Wong, Emelita, B. M. Popkin, D. K. Guilkey, and J. S. Akin. 1987. "Accessibility, Quality of Care and Prenatal Care Use in the Philippines." Social Science and Medicine 24:927-44.

# MAP SECTION

# NIGERIA

SOKOTO

SOKOTO

KATSINA

KATSINA

KANO

KANO

BORNO

MAIDUGURI

KADUNA

BAUCHI

BAUCHI

KADUNA

NIGER

MINNA

JOS

KWARA

FCT

PLATEAU

YOLA

ILORIN

KWARA

GONGOLA

OYO

IBADAN

AKURE

BENUE

MAKURDI

ABEOKUTA

ONDO

OGUN

ENUGU

BININ CITY

ANAMBRA

LAGOS

BENDEL

IMO

CROSS RIVER

LAGOS

OWERRI

CALABAR

RIVERS

UYO

PORT HARCOURT

AKWA-IBOM

KILOMETERS 0   40   80   120   160

MILES 0   20   40   60   80   100

State Capitals

National Capital

Rivers

State Boundaries

International Boundaries

MARCH 1991

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