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Health Care Financing: Recent
Experience in Africa

by

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The Global Macro-Economic Situation

According to the 1981 World Development Report of the World Bank,

[...] world economic conditions have worsened; the prices the developing countries must pay for their imports, particularly oil, have increased while their capacity to pay for them has declined. Their export growth has been constrained by the continuing recession in the industrial countries. Concessional finance has stagnated; and there are signs of uncertainty in the commercial capital markets. Even under the relatively optimistic assumptions of this Report's high-case projection, the income gap between the richest and poorest countries will continue to increase; under the low-case, even the number of individuals living in absolute poverty will rise (1).

Unemployment is increasing in industrialized countries and has reached unprecedented levels since the 1930s and dampened world demand for all raw materials is creating economic hardship throughout third world countries.

This general world economic stagnation has contributed to a decline in the growth of development assistance available to poor countries. For example, the proportion of official development assistance of OECD member countries has remained constant over the decade of the 1970s at 0.35 percent of GNP after declining from 0.5 percent in 1960. Net bilateral flows from these same countries as a proportion of GNP has actually declined over the two decade period from 1960 from around 0.2 percent to less than 0.1 percent in 1979. OPEC assistance has also reached a plateau and as a percentage of GNP has actually declined to around 1.4

percent in 1980 from over 2.5 percent in 1975 (2). The prospects for significant further expansion of such assistance appears bleak particularly given budgetary problems in several of the large donor countries. Further exacerbating the problem of aid flows has been its maldistribution in favour of middle rather than low income countries (3).

Macro-Economic Context of
Selected African Countries

Given the above perspective on the global situation as it might affect all developing countries, including those in Africa, it is instructive to review the macro-economic context of African countries themselves, in order to ascertain the extent to which the financing of health care delivery may be affected. In the analysis which follows, a review is conducted of the macro-economic context of the twenty most populous African countries (excluding Uganda and Mozambique for reasons of data unavailability). Data relevant to this discussion is presented in Table 1. These twenty countries contain about 75% of the population in sub-Saharan African as of 1979, with Nigeria alone representing over 25%.

In Column 2, Table 1, 1979 GNP per capita figures are presented. The continent-wide average for 1979 was about \$400. Among the twenty countries presented in Table 1, at least 50% had a figure less than \$300, with only 7 countries having figures

TABLE 1

MACRO-ECONOMIC CONTEXT OF
SELECTED AFRICAN COUNTRIES, 1979

Country	1979 pop in millions	GNP per capita	GNP/cap Average Annual Growth Rate 1960-79	Bal. of Trade millions \$ 1979	% Exports of GDP 1979	Debt Service as % of GNP 1979	Official Dev. Assist. as % of GNP 1977	Food Aid Imports kg/cap. 1979	Avg. Annual Rate of Growth of Tot. Food Prod./cap 1970-79
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Nigeria	82.6	670	3.7	5,674	24.0	0.4	(. .)	0.0	-0.8
Ethiopia	30.9	130	1.3	-149	11.8	0.7	4.4	5.1	-1.7
Tanzania	18.0	260	2.3	-561	12.7	0.9	12.4	3.0	-1.5
Sudan	17.9	370	0.6	-619	7.6	4.5	8.5	5.1	0.5
Kenya	15.3	380	2.7	-554	20.9	1.8	6.0	0.6	-0.5
Ghana	11.3	400	-0.8	103	10.8	0.5	3.8	6.5	-3.1
Madagascar	8.5	290	-0.4	-247	14.0	0.7	5.1	1.0	-0.7
Ivory Coast	8.2	1,040	2.4	24	27.5	6.0	1.9	(.)	-0.9
Cameroon	8.2	560	2.5	-142	21.2	2.5	5.9	0.9	1.1
Zimbabwe	7.1	470	0.8	254	32.8	NA	0.5	NA	-0.7
Mali	6.8	140	1.1	- 3	14.5	0.7	19.9	3.7	-1.6
Malawi	5.8	200	2.9	-166	19.1	2.1	12.0	0.4	0.3
Zambia	5.6	500	0.8	622	42.5	9.7	7.6	8.9	0.0
Upper Volta	5.6	180	0.3	-173	9.4	0.8	19.8	8.7	0.4
Senegal	5.5	430	-0.2	-335	17.0	5.0	13.1	11.8	-1.6
Niger	5.2	270	-1.3	NA	NA	0.8	12.3	4.5	-1.5
Rwanda	4.9	200	1.5	- 75	13.4	0.1	15.0	2.1	1.1
Chad	4.4	110	-1.4	NA	NA	3.3	18.0	5.9	-1.0
Burundi	4.0	180	2.1	- 47	14.4	0.4	12.8	4.0	-0.7
Somalia	3.8	NA	-0.5	-176	10.8	0.2	NA	22.5	-1.7

Sources: Berg, et. al., Annex, 1981; World Bank, 1981.

above the continent-wide average. Only one, Ivory Coast, had a figure greater than \$1,000. Poverty is pervasive throughout all countries on the continent.

Further, the per capita economic growth rates (Column 3) over the last two decades shows that the prospect of alleviating poverty is not rapidly becoming a reality. For the continent as a whole, annual per capita income growth during 1960-1979 approached 1.6%. However, among the twenty most populous countries, six recorded negative growth over the period and four others grew at less than 1% per year. Only three countries recorded rates above 2.5% (Kenya, Cameroon and Nigeria) with Nigeria's figure significantly influenced by oil. The World Bank has recently concluded that the economic growth prospects for the 1980s will be even bleaker than the previous two decade period, with continent-wide growth projected to be negative (4).

Perhaps a more direct long term barometer of future health trends is the average annual per capita rate of growth in total food production (Column 9, Table 1). These data show that over the decade of the 1970s, thirteen of the twenty countries had negative growth rates, and eight of the thirteen showing negative rates of greater than 1% per year. Only six showed positive rates, with the Cameroons being the only country with a positive rate greater than 1% per annum. Given that the average daily per capita food supply in Africa was estimated at around 2,000 calories in 1977, which is significantly below any nutritional

standard, and that consumption is below the supply level due to losses in storage and preparation, it is clear that the economic forces operating in agriculture are crucial not only to the long term development of the economy as well as to the health status of the population.

One potential option is to import food. However, in order to engage in such a strategy, a capacity to import is necessary. In Column 5, Table 1, the data show that many countries' economies are open, with a large proportion of total economic activity hinging on export activity. In six of the twenty countries, exports comprise more than 20% of GDP, and only two show a figure less than 10%. Thus it is clear that export growth is important for economic growth and that these open economies are dependent on an expanding world demand for primary products. Without an expanding international market and exportable surpluses, trade imbalances dominate the economic life of many countries and their ability to import the items necessary to maintain many programs, including those which seek to improve health care and food production.

In Table 1, Column 4 data are presented which show the balance of trade in 1979 (one indicator of a country's capacity to expand imports). The data show that only one country, Nigeria, had a significantly positive balance. Thirteen of the twenty countries had negative balances, with four countries, Kenya, Sudan, Tanzania and Senegal, having a negative balance of

greater than \$300 million. Of the four countries which had a positive balance, two had a mineral export base whose value has experienced wide fluctuations over the last twenty years. Given the pre-dominantly negative trade balance in Africa, further import expansion is predicated on the vagaries of export growth, capital transfers from abroad, or remittances from abroad (only likely in countries close to the Middle East or South Africa).

The problem of capital transfers in the form of loans is that they must be repaid, often with interest. Column 6, Table 1, shows the extent to which countries have resorted to this practice in prior periods. The debt service to GNP ratio shows the proportion of total annual output which must be used to repay prior loans. Four countries, Sudan, Ivory Coast, Zambia and Senegal, must use at least 4.5% of GNP each year to repay the principal and interest outstanding on previous loans. Only five countries have indebtedness which represent less than 0.5% of GNP.

Given such low per capita incomes in Africa, most countries qualify for concessionary development assistance which, in some cases, can take the form of grants or highly concessionary loans, thus reducing the debt service burden. The data in Table 1, Columns 7 and 8, show the extent of such assistance. Column 7 shows that nine of the twenty countries were receiving assistance at a level equal or greater than 12% of their GNP. Many of the nine are former French colonies, with only two being former British colonies. For such countries, this high ratio of

development assistance suggests that there is virtually no domestic saving available for investment and thus a heavy dependency on the commitment of industrialized countries to continue to provide the resources necessary for future growth. Several of the other countries which had lower assistance ratios are viewed by external donors as being incapable of servicing any additional debt, e.g. Ghana, or having "graduated", e.g. Nigeria and Ivory Coast.

Besides official development assistance, many countries received food aid assistance as well. Excluding the special exception of Somalia, where humanitarian assistance to refugees is so prevalent, there were eight countries which received over 5 kg/capita of food aid in 1979. It is likely that this long term dependency on external food assistance will continue in light of the per capita food production trends discussed earlier (Column 9).

Health Care Systems in Africa:

The Nature of The Market

In most African countries there are at least five alternative health care systems which provide service. The system which has been in place the longest is comprised of various traditional care providers, from traditional birth attendants to bone setters and herbalists. The anthropological

literature has described the considerable diversity which exists in these systems between and within these systems (5). In some countries some types of traditional practitioners have sought and obtained official recognition by the government, whereas in other countries such enlightenment is far from being realized. Suffice it to say that in most countries traditional practitioners exist in large numbers and reside close to the population. Evidence suggests that substantial incomes often accrue to such providers and that they have adapted to the existence of "modern" providers and medical practices (6).

Second, in most countries, there are "modern" private practitioners in urban areas. These persons have been trained as physicians and largely service the more affluent urban residents on a fee for service basis. Most are citizens of the respective African countries and many were educated in their country. In some countries it is common for public physicians to have a private practice in the late afternoons and evenings.

Besides private physicians, in most urban areas there are a number of thriving private pharmaceutical firms. In some countries, "modern" private pharmacies exist in selected rural areas as well (7). Often pharmacists act as de facto health care providers and make treatment decisions for individuals who seek their advice and counsel rather than from other care providers. The pattern described above is increasing, since the people are increasingly aware that pharmacists are the most guaranteed

suppliers of drugs.

A third private health care system is operated by religious mission groups and other private voluntary agencies. In a number of countries, such organizations operate up to fifty percent of the hospitals and a large share of the beds. They have also developed manpower training programs for virtually all cadres of health personnel with the possible exception of physicians. In many countries, the government subsidizes operations of mission facilities. At the same time, the government health care system often directly competes with mission facilities by locating a new facility in the close proximity of an existing mission facility. Utilization declines and financial viability problems often develop in mission facilities when such circumstances arise.

A fourth set of specialized health care systems exist for specific subsets of a country's population. These systems include the health care services operated by a country's army or by large firms for their employees and, in some cases, relatives. Often such facilities are in urban areas. However, they also exist on large plantations, e.g. Firestone Rubber in Liberia, or where there are large military installations in rural areas. Finally, there are special health care systems established for refugee populations, e.g. Somalia and Sudan. All of these specialized systems commonly operate outside of the government health care system.

Finally the governments of virtually all African countries have taken on the responsibility of operating a publicly financed health care delivery system, with medical care provided at facilities as diverse as referral hospitals to rural health posts. In addition, governments have often developed specialized vertical programs to address common infectious and/or parasitic diseases, e.g. T.B., malaria and leprosy.

These governmentally operated systems have been gradually developed, particularly since independence. With the official declaration of the importance of the PHC strategy at Alma Ata in 1978, many governments have expanded rural components of their systems. Without sufficient resources and support system development, e.g. supervision and drug and other supply provision, the service quality has not been maintained. As a consequence, many government rural-based systems have languished. In addition, other service providers described above have been forced into a competitive mode with government facilities and personnel when it expanded into their previously defined service area. Thus, one can find a number of examples of underutilized facility and staff in many publicly operated health care systems in Africa.

Based on perceptions of symptoms, the people make choices amongst the options which they face. In the section that follows, a review is conducted of the limited evidence available on the amounts spent on the various health care delivery systems

in selected African countries. The diversity of expenditures between countries suggests that it is difficult to make generalizations about the pattern of health care delivery in Africa.

Sources of Health Care Expenditure
in Selected African Countries

While it is difficult to obtain comparable data on the sources of health care expenditure for African countries, data from six countries are presented in Table 2. Basically these data can be obtained from government documents or the financial statements of non-governmental organizations, e.g. religious organizations, insurance organizations or private firms, or inquiring from the international donors about their programs. A first approximation of private health expenditures can be obtained from general household expenditure surveys which are regularly conducted by governmental statistical offices for the purpose of establishing price index weights for various items used by households. The non-comparability in such estimates results primarily from the non-specificity of what is reported as a health and/or medical expenditure and differences between rural and urban consumptions bundles.

Even though the comparability and possible underreporting problems are acknowledged, there are several important points to

TABLE 2

SOURCES OF HEALTH CARE EXPENDITURES

IN SELECTED AFRICAN COUNTRIES, VARIOUS YEARS IN 1970s

Country, Year	% of Total Expenditure								
	Govt. Central MOH	Other Minist- ries	Local MOH	Social Security	Private insur.	Religious Org.	Intl. Donor Orgs.	Private Firms	Individual Private Expend.
Botswana ² , 1976	32	9	5	--	--	1	33	4	16
Ghana ¹ , 1970	NA	NA	NA	NA	NA	NA	NA	NA	72
Rwanda ² , 1978		24		--	--	22	40	2	12
Senegal ² , 1981	24	12	4	--	--	NA	16	5	39
Sudan ¹ , 1970	NA	NA	NA	NA	NA	NA	NA	NA	41
Uganda ² , 1968/69	50	4	17	--	--	6	4	1	19

Sources: 1. Wayne Stinson, p.13, Table 1.1 (1982).

2. David W. Dunlop, Table 4 (1982) WHO.

Note: Comparability of the data across countries is not completely possible due to differences in (a) data availability, (b) categorization from study to study, and (c) date of study. Despite these caveats, clearly significantly different patterns of health expenditure emerge.

highlight from the data presented in Table 2. First, while the proportion varies from country to country, governmental expenditures constitute a significant proportion of health expenditures. Among the six countries presented in Table 2, this percentage varies from a low of about 24% (Rwanda) to as high as 70% in Uganda prior to the regime of Mr. Amin. In the case of Ghana and the Sudan, where the exact governmental expenditure proportions are not provided, the figures would have likely been 20 and 50%, respectively.

In addition, the limited governmental data suggest the important differences which exist between the health expenditures made by (a) central and local government ministries of health and (b) other government ministries, e.g. defense and labor. Given that decentralization is the present trend in the organization of African governments, it is reasonable to assume that the local government share of total health expenditures will be increasing.

Second, it is important to find that social security expenditures on health are virtually non-existent in these six countries. This pattern is true throughout Africa, unlike Latin America where social security health expenditures represent a significant share of total health care expenditures. It is also significant to note that private health insurance has not yet developed in most of Africa. There are some noteworthy exceptions today, such as Kenya, where many employees of large public and private organizations are covered under a private

health insurance plan (8). Further, there are a number of countries where rural prepayment community financing programs have been developed, e.g. Benin, Ethiopia, Kenya and Senegal (9).

Third, religious organizations constitute not only an important source of health care service in many African countries, but also an important source of expenditures as well. The importance of this source of health care varies from country to country, and even within countries. However, it is possible to learn much about efficient resource use and quality from a careful analysis of their methods of providing care (10).

Fourth, in some African countries international donors have been very instrumental in expanding the governmental health care system into rural areas. In some cases they have continued to pay for the recurrent costs of such systems. The predominant issues related to such sources of expenditure include: (a) can the government afford to pay the recurrent cost of donor initiated health activities when the embodied technology often requires many imported inputs and skilled personnel?; and (b) whether and how the government will be able to integrate donor initiated vertical programs, e.g. immunization, malaria control and family planning, into the basic health service system? Needless to say, when a significant proportion of all health expenditures emanate from donor groups, the long term financial implications borne by government must be carefully considered (see following section).

Finally Table 2 reveals that in virtually every African nation considerable expenditures are made by individuals for traditional health services, private modern physicians, pharmaceuticals and other care providers. The significance of this finding is that for many years, it was often thought that since African governments had made a commitment to their constituents to provide free health care, little private sector health care expenditures were made. Today it is clear that such an assumption was unwarranted. Further, it is clear that health planners and other decision-makers must take cognizance of the role--complementary or competitive--which the private health sector plays. The attainment of national objectives to achieve health for all by the year 2000 requires that the private sector has an important role. Table 2 points out that individuals are "voting with their feet."

Realities of Central Government

Financing and Expenditure Patterns

Financing Pattern

In order for a government to engage in any program or intervention, it must be able to mobilize the necessary resources for implementation. In this section of the paper an analysis is conducted of African nations' ability to mobilize resources via taxes. The aggregate relationship between central government revenues and expenditures is reviewed as is the structure of

government revenue. The capacity of central governments to expand health care services and finance their recurrent cost is reviewed in the context of the central governments' surplus or deficit position. The data to be reviewed in this analysis are presented in Table 3.

The data presented in Table 3, Column 1 reveals several important findings with respect to central governments' capability to mobilize resources. First, there is a considerable change in the capability of African governments to raise revenue in the form of taxes expressed as a proportion of GDP. Ghana only mobilized 6.3% of GDP whereas Nigeria and Somalia could accumulate nearly four times as much, 23.9% of GDP. Second, the tendency is that in those nations whose per capita income is low, e.g. less than \$300, central government tax revenue expressed as a proportion of GDC is also low, less than 15%. Much of the reason for the above tendency is found by analyzing the structure of government taxes as found in Columns 3a, b and c.

Six of the nine countries which mobilized less than 15% of GDP in the form of taxes collect a dominant share of their revenue (more than 45%) in the form of import and export duties. These sources of tax revenue grow only when the world demand for exports grows. Thus, when industrialized nations have a recession, such countries face severe government revenue shortfalls and greater dependence on international financial transfers results.

TABLE 3

CENTRAL GOVERNMENT FINANCIAL SITUATION IN
IN SELECTED AFRICAN COUNTRIES, 1979 OR LATEST YEAR AVAILABLE

Country	Year	%Central Gov't Taxes is of GDP	%Central Gov't Taxes is of Gov't Expend.	% of Total Gov't Revenue Collected in:			Central Gov't Surplus or Deficit as % of Total Expen
				Import/ Export Duties (a)	Sales Taxes (b) (3)	Income Taxes (all) (c)	
		(1)	(2)				(4)
Nigeria	77	23.9	87.6	16.0	2.7	74.2	-24.3
Ethiopia	77	12.8	66.1	46.8	17.9	18.8	-17.5
Tanzania	78	16.4	59.6	23.7	37.8	27.1	-25.8
Sudan	78	15.1	54.5	40.9	24.8	11.2	-23.7
Kenya	79	19.1	73.1	21.2	32.2	30.7	-23.0
Ghana	79	6.3	39.5	61.7	16.2	14.5	-40.9
Madagascar	73	14.8	75.8	25.1	27.0	15.2	-11.9
Ivory Coast	--	NA	NA	NA	NA	NA	NA
Cameroon	79	18.0	96.1	27.5	14.4	15.6	16.6
Zimbabwe	--	NA	NA	NA	NA	NA	NA
Mali	77	16.6	82.8	30.8	19.5	20.8	- 0.5
Malawi	79	14.3	56.8	19.1	30.0	34.6	-26.1
Zambia	78	21.4	73.2	5.9	42.7	36.1	-36.1
Upper Volta	79	14.6	94.6	46.5	19.5	15.1	-13.7
Senegal	75	21.8	102.1	35.8	20.3	23.3	- 2.7
Niger	77	13.5	94.9	18.3	28.8	25.3	12.4
Rwanda	78	10.9	80.7	48.3	17.8	17.7	-12.3
Chad	76	10.9	55.3	52.4	13.2	18.5	-12.3
Burundi	77	13.3	63.2	50.1	22.0	15.5	- 7.5
Somalia	78	23.9	82.6	52.3	16.3	5.5	-34.1

Note: NA = Not Available

Source: IMF, 1981

The primary alternative source of revenue is the income tax on individual and corporate earnings. The importance of this revenue source is that it provides government with an expanding source of revenue as economic growth occurs. However, in order to generate a significant amount of resources from an income tax, it is necessary to have a large number of wage-earners and firms in the "modern" sector in order to improve collection compliance and obtain economies of scale in collection. In the case of the countries under analysis, only four of the twenty nations obtained at least 30% of their revenue from the income tax and ten obtained less than 20%. The primary reason for the very high figure for Nigeria (74.2%) is due to its oil revenues, which can be easily monitored.

Column 2, Table 3 provides information which shows the extent to which tax receipts are financing government expenditures. The only other ways which governments have to finance expenditures includes profits from government owned businesses, loans and gifts from donor organizations; borrowing from domestic sources of saving; or money supply creation (inflation). For most countries which do not own a significant share of an extractive commodity, e.g. mineral or oil, it is very important to cover virtually all of their expenditures from tax receipts.

The data in Column 2 show that seven of the eighteen countries for which data are available cover less than two-thirds

of their expenditures, with Ghana not even covering 40%. Only four countries cover more than 90%.

Finally, the data in Column 4, Table 3 show the extent to which government revenues from all sources except foreign or domestic borrowing or money supply creation, cover government expenditures. These data show that only two of the eighteen countries have a surplus. Eight of the countries indicated deficits of greater than 20%, with Ghana registering the largest deficit at more than 40%. While it is not necessarily bad for governments to borrow periodically when significant benefits may accrue from the expenditure, international lending institutions become increasingly wary when the deficits recur and become larger over time, as has been the case in a number of the countries involved in this analysis. An even larger deficit figure is indicative of a significant recurrent cost problem which is often associated with an even greater rate of inflation. The International Monetary Fund is most unhappy when they observe such trends. Publicly supported development projects and activities such as Primary Health Care are then constrained from full implementation and can only continue to expand via private sources of finance.

Expenditure Pattern

In this section the expenditure patterns of central governments of twenty African nations are reviewed in a selective

way (see Table 4). The primary purpose is to determine what alternative ways might be available to finance health care services and health improvements from public sector sources despite the financing constraints defined above. While the data utilized in this analysis are three to five years old and have undoubtedly changed for some countries, it illustrates the predominant central thrust of the discussion.

In Table 4, data are presented from the twenty countries included throughout this analysis on the proportion of total central government expenditures going to defense, education and health. Perhaps the single most important finding which can be drawn from the table is the considerable variation in the proportion of government expenditure going to each of these three important areas of government. For example, in the case of defense expenditures, the proportion ranges from a low of 4.1% in the case of Madagascar to 34.0% for Zimbabwe--an 8.5 fold difference. Similarly, the range of education goes from a low of 5.2% (Sudan) to 23.4% (Ivory Coast) and for health from 1.7% (Sudan) to 8.1% (Madagascar).

Despite the considerable variation in the proportion expended in each of these three areas, a common pattern appears to emerge. For those countries which have a tendency to spend a large proportion on defense, their expenditures on education and health tend to be on the lower end of the range. While a simple correlation coefficient has not been calculated, and country-

TABLE 4 CENTRAL GOVERNMENT EXPENDITURE PATTERNS
 IN SELECTED AFRICAN COUNTRIES,
 1979 OR LATEST YEAR AVAILABLE

Country	Year	% of Total Central Government Expenditures on:			% Increase in Gov't Health Expend. if Defense Exp. were reduced by 10%, all allocated to Health (4)
		Defense (1)	Education (2)	Health (3)	
Nigeria	1977	17.9	9.6	2.2	81.7
Ethiopia	1977	30.0(E)	11.5	5.0	60.6
Tanzania	1978	14.8	14.5	7.3	20.2
Sudan	1978	13.6	5.2	1.7	79.2
Kenya	1979	17.7	17.9	7.2	24.5
Ghana	1979	4.4	15.5	6.0	7.4
Madagascar	1973	4.1	15.3	8.1	5.1
Ivory Coast	1975	7.3	23.4	8.1	9.0
Cameroon	1979	9.2	13.6	4.3	21.2
Zimbabwe	1979	34.0	13.0(E)	6.0(E)	56.7
Mali	1977	18.6	22.0	6.4	29.2
Malawi	1979	13.9	8.7	5.3	26.2
Zambia	1979	15.0(E)	16.8	7.7	19.4
Upper Volta	1979	16.9	16.4	4.9	34.3
Senegal	1975	10.7	19.0	6.0	18.0
Niger	1977	6.1	23.3	6.0	10.1
Rwanda	1978	12.4	18.8	6.3	19.8
Chad	1976	25.8	13.5	4.2	61.0
Burundi	1977	11.2	20.6	4.7	24.0
Somalia	1978	25.0	8.1	3.2	77.9

Note: (E) = Estimated

Source: IMF, 1981, and selected World Bank documents.

specific exceptions can be noted, e.g. Zimbabwe (all high proportions) and Sudan (all low), the data tend to suggest substitution exists between defense and social service expenditures (11).

Reallocation Implications

In Column 4, Table 4, the data reveal the health expenditure implication of a 10% reduction in defense expenditures. The data suggest that health expenditures would rise by about 25%, with the range of the percentage increase in health expenditures for each of the twenty countries depicted in Column 4, Table 4. For those nations which allocate over 20% of their budget to defense (irrespective of reason), a reallocation of 10% of their defense budget to health would increase government health expenditures by over 55%.

Another way of understanding the implication of such a reallocation can be stated as follows. For the African country whose pattern approximates the median, such that a 10% decline in defense allocations could potentially increase health expenditures by 25%, significant improvements in health programs could result. At present between 50-67% of all health expenditures pay for wages and salaries. Drugs and transport each commonly take about 20-25% with other costs coming out of the residual. The most common problems confronting health programs in Africa include lack of drugs to last between

deliveries and insufficient transport to (a) get the drugs to the periphery and (b) maintain a continuous supervision program. If the additional 25% increase in health budgets which could be achieved from the above described reallocation, were then used for drugs and transport, expenditures for both items could rise by at least 50%. Given that drugs have often been distributed on a monthly basis and that it is common to hear that drug supplies commonly run out in two weeks, the drug supply problem in many countries could be significantly reduced. Further, if transport budgets could increase by about 50% and that supervisory personnel went out to the rural sites when drugs were being distributed, the problems of supervision and paraprofessional skills maintenance could be significantly ameliorated as well.

In some countries the balance of payments/foreign exchange constraints could continue to pose a problem (see Table 1) even if health expenditures could increase from a reallocation as defined above. Nevertheless, if the described in the previous section, i.e. reallocation. There are a number of other community related items/equipment, health sector specific imports could increase by that amount without an exacerbation of the foreign exchange situation.

African Experience with Alternative Financing Options

One important alternative health care financing option has been described in the previous section. There are a number of other community based options, however, which have been tested in many countries. In a recent American Public Health Association (APHA) publication, this experience has been reviewed (12) and is summarized in Table 5. According to APHA, as of 1982, thirty-two health care projects in 17 countries had experimented with some form of community-based financing mechanism. Three of the enumerated projects were reported to be national primary health care programs (Nigeria, Ethiopia and Niger) covering over 116 million people.

In 30 of the 32 projects listed, the national government contributed to their financing, with the government support comprising a significant share in many instances. External bilateral and multilateral donors, private voluntary organizations, and local private sources financially supported 16 projects, with AID participating in eleven. There were at least four local financing mechanisms employed. These included personal fee-for-service (18 projects), drug sales (14 projects), personal prepayment (3 projects), and agricultural production prepayment (2 projects). The latter two mechanisms were established as important components of an insurance program.

TABLE 5

SUMMARY TABLE OF AFRICAN HEALTH PROJECTS USING
COMMUNITY FINANCING (PER APHA INVENTORY)

	Number	Comments
Number of projects enumerated	32	Most 1960 to 1980
Number of countries	17	
Number of nationwide projects	3	serving 116.5 million people
Number of national government assisted projects	30	
Number of AID assted projects	11	
Other sources of finance	15	PUOs (5), Bilaterals (6), UN (2), other (2)
<hr/>		
Number of projects employing:		
Fees for Service	18	Donation boxes included
Drug Sales	14	
Personal Prepayment	3	
Production Prepayment	2	
<hr/>		
Objectives for a Community Financing Scheme:		
Worker Compensation (salaries)	13	Reported percentage of recurrent costs ranged between 25 to 99%
Drugs	13	
Construction & Maintenance	4	
Cost of training workers	1	
Hospitalization	0	
General Revenue	7	
Supplement to Services	2	

Source: p.46, Table A.1, Wayne Stinson, 1982

There appears to be three primary objectives underlying the use of these local financing mechanisms: (a) to cover worker compensation; (b) to cover drug expenditures; and (c) to develop additional general revenue for the government. Other uses of local revenue include construction and maintenance, defraying worker training and locally supplementing governmental services. Most of these projects have not been in operation for more than four years. Thus, long run project financial sustainability via these mechanisms has not been determined, even though four projects claim to have covered over 95% of recurrent project costs. Clearly, additional work is required to determine the long run sustainability of these 32 projects via such mechanisms. Further, not all of the costs or benefits of each mechanism have been determined, given the varying circumstances facing each project (see summary section below).

Summary

The economic realities of health sector development in Africa has been analyzed in this paper. Both the global and national macroeconomic context has been defined. Given the available data, it is clear that most African countries face increasingly serious economic realities, such as slow or even declining economic growth (per capita), a depressed food production situation, severe balance of payments crises, and increasing dependence on external financial assistance. Given

the limited but increasingly available 1981 and 1982 data, the economic situation in many countries is more constrained than those indicated by the data contained in this paper.

In this context, the potential competitive situation facing governmental health care systems was reviewed. In addition, the diversity in the sources of health expenditures between countries in Africa was highlighted. These data provide clear evidence that governments clearly do not finance the entire health care system and that individual payment for service in many countries represent an important source of revenue for many care providers in various health care systems operating in any given country.

The potential for governments to finance either an expansion of or improvements to the government component of their health care systems is then reviewed. The highlights of this analysis include the following points. First, the tax structure in many African countries is highly dependent on export and import duties, which in turn creates dependency on sustained foreign demand for exports. The ability to tap domestic resource flows via such mechanisms as the income tax has often not developed beyond the urban elite such that it is more difficult to mobilize additional resources from domestic economic growth.

Second, given that tax receipts are not increasing rapidly enough to cover projected additions to governmental recurrent expenditures, new development initiatives must be curtailed.

Third, considerable diversity exists across countries in the central governments' allocation of resources between health, education and defense. Despite this diversity the data show a tendency that expenditures for defense or health and education are substitutes with respect to the proportion of a government's budget allocated to each. The data suggest that if defense expenditures were reduced by ten percent, health expenditures could be increased by at least 25%, if all of the released resources were used in the health sector. Such an increase, if used to address the problems of drug supply availability, supervision and transport, could lead to a significant improvement in the quality and reputation of publicly provided services. Further, if the expansion of health inputs were strategically timed with a reduction in defense related imports, the foreign exchange constraint could be minimized.

Finally, in the last section of the paper, a brief review of the alternative financing mechanisms being tested in Africa suggested that a number of different packages were being tested and implemented. At the present time, however, little information is known about (a) the amount of revenue generated from each mechanism in each specific context; (b) the cost of administering each alternative mechanism; (c) how each mechanism functions at the community level in an organizational sense; (d) how various financing mechanisms are combined to fund a specific program entirely; (e) the effect of each mechanism on patterns of

utilization; and (f) the incidence of the benefits and costs of each alternative mechanism. Until additional information is available on each of these alternatives with respect to the questions just posed, it is unclear which, if any, may be useful to reduce the financial constraints which presently face health care development in Africa.

Endnotes

- 1) P.iii, World Bank, World Development Report, 1981, (Washington, D.C.; World Bank, August 1981).
- 2) Table 16, pp.164 and 165, World Bank, Ibid., 1981.
- 3) Pp.55-59, World Bank, Ibid., 1981.
- 4) Table 1.1, p.3, World Bank, Ibid., 1981.
- 5) For the most complete treatment of traditional health systems see: Z.A. Ademuwagun, John Ayoade, Ira Harrison and Dennis Warren, eds., African Therapeutic Systems, (Waltham, MA: Crossroads Press, 1979).
- 6) See Lloyd Swartz, The Role of The Medicine Man Among the Zaramo of Dar es Salaam, unpublished Ph.D. dissertation, University of Dar es Salaam, Dar es Salaam, Tanzania, 1974.
- 7) See Rosalyn King, The Provision of Pharmaceuticals in Selected PHC Projects in Africa: Report of a Survey, paper prepared for the Africa Bureau, AID, Washington, D.C., 1981, for a description of pharmaceutical systems in eight African countries.
- 8) Family Health Institute, A Working Paper on Health Services Development in Kenya: Issues, Analyses, and Recommendations, (Washington, D.C.: Office of International Health Affairs, HRA, DHEW, May 16, 1978).
- 9) Wayne Stinson, Community Financing of Primary Health Care, (Washington, D.C.: American Public Health Association, 1982).
- 10) See David W. Dunlop, The Economics of Uganda's Health Service System: Implications for Health and Economic Planning, unpublished Ph.D. dissertation, Michigan State University, 1973. Charles Hartwig also conducted an analysis of the role of mission hospitals in Kenya in the early 1970s for his Ph.D. dissertation.
- 11) A scatter diagram of expenditure proportions in the twenty countries comparing defense and health, and defense and education, was analyzed to substantiate the point. The author can provide the scatter diagrams to those who may be interested.
- 12) Wayne Stinson, Community Financing, Op. cit., 1982.

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