Public Health Expenditure and the Rural Poor in Kenya

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I. Introduction

This paper assesses the extent to which public expenditures on health benefit poorer groups in rural Kenya. The assessment is based mainly on an ‘incidence analysis’ of health expenditures in fiscal year 1992/93. This is set out in section III below. To set the scene for the incidence analysis, the report begins (in Section II) with a brief discussion of the prevalence of poverty in rural Kenya, and an overview of the provision of health care in Kenya. The section highlights how trends in the allocation of health expenditures are likely to influence the poor. Section IV addresses the specific issue of cost recovery in the health sector in Kenya and how the policy is likely to have influenced the use of health services by the poor. The report is concerned only with rural Kenya because of limitations of the available data on urban health facility use.

II. Health Care and the Rural Poor: the Setting

Before we come to the analysis of the incidence of public-sector health expenditures, it is useful to review the context in which this analysis is placed. This section therefore summarizes what is understood currently about the incidence of rural poverty in Kenya. It also discusses briefly the main trends in health expenditures, assessing how the poor are likely to have been affected by them.

II.1 Poverty in Rural Kenya

Recent (and preliminary) estimates of poverty in rural Kenya have been reported in Mukui (1993), based on the expenditure data of the Central Bureau of Statistics Welfare Monitoring Survey (WMS). The welfare measure for this analysis of poverty was total per adult equivalent household expenditure, rather than income. Mukui uses a number of alternative poverty lines in his analysis, but we report here only the results obtained from the absolute poverty line. This line was estimated as the level of expenditure required for a person to achieve the recommended intake of food (defined as that food bundle yielding 2250 calories per day), and an estimate of essential non-food items. Individuals were considered in 'hard core' poverty when their total expenditure falls below the food-only poverty line. Table 2.1 summarizes Mukui's findings.

1/ The paper is part of an overall review of public expenditures for Kenya, which includes analysis of health expenditures. The health expenditure analysis has been divided into two separate reports, this paper being one of them. The first report addresses the main sectoral expenditure issues. This paper is intended to complement that report by providing analysis of the benefits to the rural poor of public health expenditures in Kenya.

2/ The non-food component of the absolute poverty line was based on the non-food expenditure of individuals whose food expenditure was within -20% and +10% of the food only poverty line.
The incidence of rural poverty, as measured by the head count index and based on the absolute poverty line, is estimated to be 46% in rural Kenya. The hard core poor, based on food needs only, are estimated to comprise 37% of the population. Poverty is highest in Western and Rift Valley regions, and lowest in Central region. Most of Kenya's rural poverty is found in Rift Valley region, which accounts for just under a third of its incidence. And combined with Western, the two regions account for just under a half of Kenya's rural poverty (Mukui, 1993: Table 32). Poverty in certain districts is extremely high, as for example in Kerico/Bomet and W. Pokot in Rift Valley, and Busia in Western region. More then two thirds of the populations of these districts are estimated to be in absolute poverty.

Rural poverty also varies by socioeconomic group, with subsistence farmers appearing to be more prone to poverty that other rural groups. According to Mukui's estimates, over two thirds of rural poverty is found among subsistence farmers. There is little difference in the recorded incidence of poverty among cash-crop farmers, pastoralists and rural informal-sector workers. The pattern of hard core poverty among regions and socio-economic groups is similar to the absolute poverty estimates.

The analysis that follows disaggregates the rural population into deciles. These preliminary results of Mukui (1993) suggest that the bottom four deciles should be treated as representing the poor in rural Kenya.

II.2 Health Care Financing: Curative Versus Preventive Care

The allocation of public health expenditures has been analyzed by Manundu (1993) as a component of a World Bank public expenditure review for Kenya. His findings provide important background information for the incidence analysis that follows. A stated health policy of the Government of Kenya is to give greater emphasis to preventive and primary health care, and less to hospital-based curative care. The introduction of treatment fees at hospitals (and more recently at health centers) is intended to encourage this adjustment. Three quarters of the revenue raised by these user charges are to be retained by the facility at which they are imposed, but a quarter is to be retained by the district to help finance preventive health services. This change in financing (which is discussed further below), should encourage a gradual increase in real resources allocated to preventive care, and a reduction in the allocation of public funds for curative care.

The poverty dimensions of such re-allocations are certain to be complex, and it is not our intention here to explore them in depth. In general, preventive health services, especially those that are delivered through community health interventions, are more likely to be equitable in their effects than curative personal services. This is because community

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3 Mukui centers his analysis on the \( P_\alpha \) class of poverty indices (Foster, Greer and Thorbecke, 1984). The index varies with the parameter \( \alpha \): it indicates the incidence of poverty (or the head count index) with \( \alpha = 0 \); for \( \alpha = 1 \), the index also measures the intensity of poverty; and with \( \alpha = 2 \), greater weight is given to the poorest of the poor. These indices are referred to as \( P_0 \), \( P_1 \) and \( P_2 \) respectively. For details, see also Ravallion (1992).
based preventive services benefit everyone, regardless of income, and because the poor are less able to prevent disease without such interventions, compared with the rich. The potential benefit to the poor from community based health interventions are therefore greater than that to the rich.

What are the trends in the allocation of public health expenditures in Kenya in recent years? Table 2.2 reports the allocations of public spending on health since fiscal year 1987. It reports actual spending up to FY91, and allocations according to the forward budget for FY92 and FY95. Items under curative health care cover expenditures on hospital-based care, including the Kenyatta National Hospital (in Nairobi), the provincial and district hospitals, and a number of more specialized facilities (such as psychiatric hospitals and dental services). Preventive and promotive expenditures cover (among other items) family planning and maternal and child health care, and expenditure on preventive care for communicable and vector-borne diseases. Rural health services are mainly health centers and dispensaries -- facilities which provide both preventive and curative services.

A major re-allocation of expenditures occurred between FY87 and FY88, with a sharp reduction in the share of recurrent spending going to curative care, and even sharper increase in spending on both preventive/promotive care and rural health services. The latter two components received just 11% of the total recurrent health budget in FY87, and this rose to 22% in FY88. However, since then it has stabilized at around 20% of total health sector recurrent spending. The allocation to hospital-based curative care has maintained a fairly constant share in total recurrent spending, at around 70% of the total. The data of Table 2.2 do not indicate any significant recent change in actual health spending (that is over the 1988-91 period). Forward budget allocations for 1995 envisage some increase in the share going to rural-based services (rising from 13% in FY91 to 19% in FY95), but other than this, the pattern is generally unchanged for the future. Recent trends, therefore, in recurrent expenditures on public health, therefore, do not suggest any significant pro-poor bias.

II.3 Health Care Financing: Allocations Within Curative Care

Although the continuing reliance on curative care is indicated in the allocations analyzed above, the outcomes need not be detrimental to the poor if they have access to effective curative care. What trends can be observed in the composition of curative spending since 1987? Table 2.3, again based on Manundu (1993), reports how curative recurrent spending has been allocated over the 1987-91 period. There has been some gain in the expenditure share being spent on district hospitals, with the shares of both the Kenyatta National Hospital and the provincial hospitals declining slightly. On the assumption that the poor gain easier access to district hospitals 1/ these trends suggest that allocations within hospital-based care have become more pro-poor. However, these changes are relatively minor, and prospects for the future are not encouraging. Table 2.3 also reports the

1/ The travel costs required to gain access to provincial hospitals are likely on average to exceed those to district hospitals. This would encourage the poor in particular to rely more (relative to the non-poor) on the latter for curative care.
allocations of the Forward Recurrent Budget for FY92 and FY95. These show a significant reduction in the share of district hospitals and a noticeable increase for Kenyatta National Hospital. In many respects, therefore, the increase in forward budget allocations to rural health services noted above is likely to be counteracted by the reduced relative allocations to district hospitals.

One major issue that is certain to influence the financing of health care in Kenya is the rapid spread of AIDS, and how to cope with the demands this will place of the health-care system. There is a real danger that AIDS patients may overwhelm the capacity of existing facilities to deal with the numbers involved. Box 1 outlines some of the issues raised by the spread of the AIDS disease.

In sum, recurrent expenditure on health care in Kenya continues to place greatest emphasis on curative health care, and within the hospital sector, a persistent emphasis on Kenyatta National Hospital. Although the services of the latter are available to poor and non-poor alike, it is unlikely that these expenditures will greatly benefit many of Kenya's poor, the majority of which live in the Rift valley and Western regions. There is little indication from the expenditure trends examined in this section that health spending in Kenya has become noticeable pro-poor during recent years. However, this judgement is based only on recurrent expenditure allocations among the various categories of care, without any supporting information on the use of such care by the poor. In the following section we examine in greater detail how the incidence of expenditures on curative care is distributed among Kenya’s rural population.

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5/ In what follows, curative care is defined to include expenditures on curative care provided by public hospitals (Kenyatta National hospitals, and provincial and district hospitals, but not the specialized hospitals), and on health centers and dispensaries. We have therefore broadened the coverage of expenditures on curative care compared with that used by Manundu (1993) to include also rural health services.
Box 1 Coping with AIDS

It is estimated that presently over three-quarters of a million adults are HIV infected in Kenya. By the year 2000, as many as 1.6 million adults may be infected, most of whom will die in the years between now and 2005. By 2005 we can expect over 300,000 adults to be dying of AIDS every year. In addition by 2000 the number of orphans will have risen to over 600,000. AIDS is now the major cause of adult mortality in Kenya, as in many African countries. Few data are available on the effect of AIDS illness and deaths on the economic situation in Kenya. It can safely be said, however, that AIDS is 100% fatal, widespread, strikes adults in their most economically productive years, and affects the rich and poor equally.

The burden of AIDS on the health system, as well as the overall economy and the social framework, will be overwhelming. At present, the traditional public sector cannot afford the direct treatment costs or the indirect survivor assistance costs. Given the magnitude of the AIDS pandemic, urgent action in the public health sector is needed in two main areas:

- **The need to avoid the swamping of the health care system with sick and dying people.** Already it is estimated that over 40% of hospital beds are occupied by AIDS cases. These sick and dying people will fall into two categories: those who are HIV positive, and are ill with "opportunistic infections" like TB or pneumonia or dysentery, and those who have frank AIDS. The first group can be treated and sent back to several more years of productive life if the right medicines and knowledge to deal with them are available. If not, they will die. For the second group nothing can be done except to ease their descent into death. The first group can and should be treated in hospitals and health centers and doctors' surgeries, and investment is needed urgently to equip these facilities to be able to handle this group, rather than letting them languish and die, occupying valuable hospital beds. The second group should not be allowed to die in hospital as it is an expensive and unproductive use of hospital beds. They must be helped and cared for at home, or in community centers especially set up for them.

- **The need to reorganize, improve and re-focus the health care system to mount a massive prevention and control program for AIDS, and for the increase in TB that will accompany AIDS, without losing sight of existing priorities and programs for family planning, primary health care, environmental health, immunization, etc.** This is a major challenge to the Ministry of Health. The treatment of STDs (sexually transmitted diseases) is a major factor in slowing the spread of AIDS - perhaps presently the most cost effective. Yet to control STDs effectively on a national scale requires first and foremost adequate supplies of drugs. Unfortunately these drugs are not specific to STDs; so it is impossible to buy drugs and earmark them solely for STDs. To ensure adequate supplies of drugs for STDs means ensuring an adequate supply of all (or most of) the drugs needed by the health care system. Similarly, to produce the kinds of behavior change (to use of condoms and, even better, practices of fidelity to one partner) necessary to slow the spread of AIDS will require efforts at IEC, social mobilization, and unorthodox distribution systems (for condoms) which Ministries of Health are notoriously weak at, but in which other non-traditional health sectors are experienced. Effective collaboration between these sectors is vital, yet will require major policy and willingness efforts on the part of the Ministry of Health. And none of these new directions must take away priority and resources from other critical areas, like the strengthening and deepening of PHC systems.

In addition, it is important to consider ways to finance a much wider set of investments, aimed at distributing the overwhelming local costs of AIDS across wider sources of acceptable levels of contribution. Coping with the financing implications of AIDS is certain to extend beyond the financing capabilities of the Ministry of Health, and ways will have to be found to mobilize community and donor resources to meet the brunt of the challenge.
III. The Incidence of Curative Health Expenditure

The previous section has shown that public health expenditures should be allocated increasingly towards preventive care. This does not imply, however, that the state should cease to be concerned with financing curative care. Whereas better-off households may have access to private care (through health insurance schemes, etc), lower-income groups, and especially the poor, will continue to rely on free or low-cost publicly provided curative services. To what extent do public expenditures on curative health care benefit the poor? Are these expenditures in any way targeted towards the poor? The following analysis assesses the incidence of public expenditure on curative care among the rural population of Kenya.

III.1 Public Health Expenditure Subsidies

The methodology adopted in this paper follows that taken in a number of public expenditure incidence studies (for Indonesia - World Bank, 1993a, and Van de Walle, 1992; Malaysia - Meerman, 1979, Hammer, 1992 and World Bank, 1993b; Colombia - Selowsky, 1979; and the Philippines - World Bank, 1992). This involves allocating an estimate of the public health-care subsidy to individuals. This section outlines the assumptions made in obtaining these estimates of public sector health-care subsidies in Kenya.

To estimate the public health expenditure subsidy by main type of facility (hospitals, health centers and dispensaries), two broad sources of information are used. First, data on public expenditures were obtained from the Ministry of Health (MOH) as reported by Manundu (1993). Second, estimates of the total number of visits to each category of health facility were estimated from the Central Bureau of Statistics Welfare Monitoring Survey (WMS) combined with information from other household surveys. Details of how the number of visits were calculated are given in the next section. Combining these two data sources yields estimates of the per visit public-sector ‘subsidy’ involved in curative health-care.

To obtain an estimate of the per visit subsidy for each category of health facility, it is necessary to estimate the number of visits by facility during the period. We postpone discussion of how these estimates were derived to the next section. Here we simply observe that two methods (referred in what follows as Method 1 and Method 2) were used, depending on what is assumed about the patterns of facility use.
Box 2: Cost Recovery: The Facility Improvement Fund

The Ministry of Health (MOH) recently introduced a cost recovery program called the Facility Improvement Fund (FIF), which included inpatient and outpatient fees at all hospitals and health centers. The program was designed to encourage the use of dispensaries and centers by having a higher fee structure at hospitals than at health centers and keeping services free at dispensaries. The program includes exemptions for several types of services and target groups (see discussion below). All the revenue so raised is to be used locally, with 75 percent of it to be retained by the facility that collected the funds and the remaining 25 percent to be used within the district for preventive and promotive services.

Since January 1992, an outpatient treatment fee (for services received) is in place, as opposed to the previously charged registration fee (to access the clinic, no matter what services were provided). Recently, exemptions have been broadened. District Health Management Boards, made up of respected individuals in the community, have been set up to oversee the FIF locally. The program is being implemented in phases. Outpatient treatment fees were instituted at Kenyatta National Hospital in April 1992, at Provincial Hospitals in July 1992, in District and Subdistrict Hospitals in January 1993 and at Health Centers in July 1993.

**Levels of Fees.** To encourage the public to use services at dispensaries and health clinics before going to hospitals for care, the program has implemented a graduated scale of fees, depending on both the type of service and type of facility where the services is provided. In addition, as the program gains acceptability, the fees for each type of services are gradually being increased. Below is the fee scale for the main types of services provided at two points in time: January, 1993 (the date of the WMS) which is the scale used in estimating subsidies for FY93; and July 1993, which will represent FY94 fee levels.

<table>
<thead>
<tr>
<th>Type of Facility:</th>
<th>General Inpatient</th>
<th>Major Surgery</th>
<th>Minor Surgery</th>
<th>Outpatient</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FY93</td>
<td>FY93</td>
<td>FY94</td>
<td>FY93</td>
</tr>
<tr>
<td>(KShs.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provincial Hospitals</td>
<td>20</td>
<td>30</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>District/Subdistrict</td>
<td>20</td>
<td>20</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>Health Centers</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>na</td>
</tr>
</tbody>
</table>

\[na - not applicable\]

**Exemptions and Waivers.** There are two main groups who are exempted from paying any fees: children under age 15 and civil servants below a specified grade (Grade G), their spouses and unmarried dependent children. The following services are exempted from outpatient charges: family planning; ante-natal and post-natal; child welfare (also exempted by virtue of age) and sexually transmitted disease clinic services. Certain illnesses are also exempted, including antenatal complications of pregnancy, tuberculosis, leprosy and AIDS. Inpatient fees can also sometimes be exempted, particularly for upward referrals of patients to provincial, district and sub-district hospitals. In addition, waivers can be granted to patients who cannot afford to pay by the person administering the treatment (no special documents are needed). There are no exemptions from inpatient fees for beneficiaries from the National Hospital Insurance Fund (for details, see Box 3).
The actual per visit subsidy for FY93 (which is approximately the period covered in annualized estimates derived from the WMS) was calculated as follows. Data on MOH actual recurrent expenditures are for the most recent year available, FY91, and include only expenditures for curative services. It is assumed that such recurrent expenditures have remained constant in nominal terms since FY91. The available data from the MOH combines public expenditures on health centers with those on dispensaries. Yet, because cost recovery only applies to health centers, it is essential that each be treated separately in the incidence analysis. The expenditures were therefore disaggregated using the following allocation rule: two-thirds of the expenditures were assumed to be allocated to health centers, and one-third to dispensaries. These proportions were based on information obtained from the MOH.

Table 3.1 presents the calculations of the per visit subsidy for FY93, which is based on FY91 public expenditure estimates (row 1) and two estimates of visits to health facilities derived from the WMS which is taken to represent FY93 (rows 4 and 5). The per visit subsidies for FY93 are estimated (assuming the number of visits is given under Method 1 assumptions) to be KShs. 151 for hospitals, KShs. 15 for health centers and KShs. 41 for dispensaries. The high subsidy estimate for dispensaries compared with health centers is noteworthy. We have assumed that total government expenditure on dispensaries amounts to one third of the dispensary/health center total, thus giving the low level of expenditure on dispensaries reported in Table 3.1. Added to this, the evidence on the number of visits to dispensaries (discussed in the following section) suggests a significantly larger number of visits to health centers (around 15 million visits per annum compared with only 3 million to dispensaries). These results suggest under-utilization of dispensaries relative to health centers. This may be due to the lack of effective curative care in the dispensaries, with medical personnel having limited diagnostic skills and unable to prescribe medicines. Individuals clearly prefer to visit health centers which offer a higher quality of care (Mwabu et al, 1993).

Table 3.1 also shows that the per visit subsidy is somewhat sensitive to the method used in estimating the number of visits. Method 2 assumptions (see below for details) yields more visits to hospitals and dispensaries, and fewer visits to health centers. This leads to lower estimates of the subsidy per visit to hospitals (now estimated to be KShs. 131) and to

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6. The survey was fielded in December 1992, with some interviews extending into January 1993. This is approximately the mid point of FY93, so that annualized estimates from the survey can be considered as reflecting the situation in that fiscal year.

7. The analysis is restricted to curative care mainly because of the information that is provided by the WMS. Since this refers only to use of services by those who are sick, it is inappropriate to allocate non-curative expenditures using the WMS data. However, according to Manundu (1993: Table 6.3), expenditures on curative care accounted for just under 70% of total recurrent expenditures in 1991.

8. Calculations of all subsidies in this paper assume that public expenditures on health have remained constant in nominal terms since FY91. This assumption means that all values used in the paper are assumed to be in FY93 prices, which is the unit of account for the estimates derived from the WMS and public expenditure cost-recovery revenues.
dispensaries (KShs. 40), and a higher estimate for the health center subsidy (KShs. 18 per visit).

The provision of public-sector health care is not only financed from MOH subsidies, but is also funded through cost recovery. Although estimates of the cost recovery per visit are not required in estimating the incidence of public health expenditures, they are required in later sections of the paper in which the burden of health recovery for the poor is analyzed. Estimates of the revenues from cost recovery (as reported in row 2 of Table 3.1) were derived from a number of sources. Revenues for the Kenyatta National Hospital (in Nairobi) are actual FY92 revenues, which are assumed unchanged in nominal terms in FY93. For the provincial, district and sub-district hospitals, annual revenue has been estimated by the Health Care Financing Program of the Ministry of Health on the basis of hospital returns for January 1993 (from 7 provincial general hospitals (PGHs), 27 district hospitals (DHs), and 15 sub-district hospitals (SDHs)). Annual estimates are based on adjusting totals for the facilities sampled to obtain national estimates (for all facilities), and on the assumption that revenue from January, 1993 is indicative of the entire year. Box 2 provides details of the charges currently being applied to the use of public-sector health services. Based on our analysis of the number of visits involved, the cost recovery per hospital visit is estimated to be around KShs 8 to KShs 10 during FY93 (depending on the method chosen to estimate visits). For each visit to a hospital, therefore, an individual is estimated to pay around KShs 8 for the service received, whilst the public-sector subsidy amount to KSh 131 (both estimates under Method 2 assumptions).

The per visit estimate of KShs 8 does not represent what all groups in Kenyan society would be paying for public-sector hospital care, nor what the poor in particular might have to pay. Moreover, it is unclear in what direction any bias might lie because of the presence of exemptions and waivers. The application of exemptions generally favors better off groups, particularly civil servants, although waivers are available for those who are unable to pay. Recent estimates by the Health care Financing Program suggest that few waivers on the grounds of inability to pay have been granted, amounting to only 1% of total exemptions and waivers.

An important component of cost recovery is the revenue hospitals receive through reimbursements from National Hospital Insurance Fund (NHIF). The operation the NHIF would also influence whether the estimate of KShs 10 per visit can be considered as representative of what poorer groups would pay. If it were to function regressively, it would imply that poorer participants in the scheme have to pay more per visit relative to richer groups. Similarly, if it function progressively, the KShs 10 per visit would be an over estimate of what the poorer participants in the scheme are likely to pay. There was little that could be done to assess the bias, but see Box 3 for further discussion of the NHIF.

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9/ Since the cost recovery program was being implemented during this period, these data underestimate the extent of revenue earned by the facilities. As the cost recovery program was expanded, so the revenue it yielded would have risen above that recorded in January 1993.

10/ The respective estimates under Method 1 assumptions are KShs. 10 and KShs. 151.
Another limitation of the FY93 estimates of public health cost recovery is that they are based on the situation as of January 1993. Yet the cost recovery program of the MOH involves and expansion in both the level and coverage of treatment fees, so that the health-care subsidies are expected to change over time. We have therefore made updated estimates of per visit cost recovery which take into account additional cost-recovery revenue from the new health center treatment fees that were initiated at the beginning of FY94, as well as an expected increase in hospital outpatient treatment fees and daily inpatient fees. These FY94 estimates are given in lines 10 and 11 of Table 3.1. Cost recovery is now estimated to be KShs 12 per visit to hospitals (KShs 10 per visit under Method 2 assumptions), and KShs 3 per visit to health centers (KShs 3.5 under Method 2 assumptions).

III.2 Health Facility Use by Expenditure Decile

In order to map the health expenditure subsidies onto expenditure deciles, information is needed on the use by individuals of the various health facilities financed by the subsidy. Information on the incidence of illness and the responses to it, was obtained by the WMS. Unfortunately, the codings used in the survey to identify how household members responded to an illness are inadequate for our purpose (see Box 4). In short, only one code was used for 'health facility', and there was no further disaggregation between private or public health facility, or public hospital, public health clinic and dispensary). This makes it impossible to ‘allocate’ to individuals the health care subsidies by facility type that were estimated in the previous section. The approach taken here is to combine evidence from other sources with the WMS data to generate the estimates of facility visits by expenditure decile. One implication of this limitation of the WMS data is that we are not able to trace public expenditure incidence in urban Kenya. This is because no reliable information was readily available on the pattern of facility use in urban areas (by income or education).

Evidence on the use of facilities by rural households is available from the Health Care Financing Program's 'Rapid Household Survey', which was undertaken in six selected 'indicator' districts in November 1992 and April 1993. The sample comprised 2087 individuals who were recorded as ill during the reference period. Only limited information was collected on income in the survey, but the education of the patient was obtained. Table 3.2 reports the patterns of health care facility use by the education level of the patient. The facility selected by a sick individual clearly depends on the level of his/her education: the better educated are more inclined to visit private

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For a discussion of the November 1992 survey and the sampling procedures and characteristics, see Kibua (1993).
facilities, and when using public facilities, to visit hospitals. Conversely, the less educated are more inclined to use public health centers. The overall pattern of visits is very similar to that reported by Mwabu et al (1993) for Meru District, a rural area in Eastern Kenya.
These regularities in facility use by education were assumed to apply in a predictable manner to facility use by expenditure decile. The choice of which pattern to apply to each decile is a difficult judgment to make. 12 Two methods were selected to allocate patterns of

12/ Ideally, the matching of education level to income/expenditure should be based on survey evidence. However, the prevalence of missing values in the education-level reporting of the WMS suggests that this mapping may yield biased results. Until these problems with the WMS data are resolved, we have adopted more arbitrary approaches.
facility use to the expenditure deciles. Method 1 involved the following assumptions: the pattern of facility use for individuals with no education or primary education 1 was assigned to deciles 1 to 7: the secondary-education pattern was applied to deciles 8 and 9; and the post secondary to decile 10. This judgment was based partly on the distribution of individuals across the expenditure deciles by level of education as reported by the WMS. These data did not, however, suggest a clear-cut mapping, which may be due in part to the errors in education reporting in the survey. Table 3.3 reports the assumed pattern of facility use for the rural expenditure deciles under Method 1. This was then applied to the total number of facility visits (as given by the WMS data) in order to disaggregate these visits by facility type.

Because of the arbitrary nature of these allocations of facility-use patterns, an alternative allocation procedure was adopted. Method 2 entailed allocating the no-education pattern to the first expenditure decile, and the post-secondary pattern to the 10th decile (on the assumption that these patterns correctly reflect the extremes of the distribution). The patterns for the remaining deciles were derived through linear interpolation. The results are reported in Table 3.3a. Taking these two approaches provides some indication of the sensitivity of the results to the method adopted.

Whilst the paper does not address issues of health-expenditure incidence in urban areas, estimates of urban visits to health facilities are needed in order to calculate per visit subsidies by facility type. Information on the use of Nairobi health care facilities is reported in a recent study by Schwartz et al (1992). The pattern of facility use derived from this study is reported in Table 3.3, and was used to disaggregate the health-facility visits reported by the WMS.

The patterns of facility use reported in Table 3.3 were then applied to WMS data to estimate the total number of rural and urban health visits each year by type of health facility, and, for rural areas, by expenditure decile. Equation 1 describes the procedure used (for rural areas):

\[
V_j = 26 \cdot \left[ \sum_{i=1}^{10} h_i \cdot f_i \cdot m_{ij} \cdot N_i \right]
\]  

where:  

- \( N_i \) = total number of individuals in rural expenditure decile \( i \);  
- \( h_i \) = proportion of individuals reporting an illness in reference period;  
- \( f_i \) = proportion of individuals with an illness reporting visiting a health facility during the reference period (from WMS);  
- \( m_{ij} \) = proportion of visits to facility \( j \) by decile \( i \);  
- \( V_j \) = estimated total number of visits by facility type \( j \);  
- \( i \) = expenditure decile (\( i = 1, \ldots, 10 \)).

13 The patterns of facility use for individuals with no education and those with primary education were very similar.
\[ j = \text{facility type: non-public health facility, public hospital, public health clinic, public dispensary (ie } j = 1,\ldots,4). \]

The total visits by facility type were adjusted to ensure that the sum of all visits across facilities matched the total number of visits reported in the WMS. \(^1\)

It is important to recognize the limitations of these methods of estimating visits to facilities. The main weakness of using the WMS to estimate health facility visits arises from the limited reference period used in the survey -- which is the two weeks prior to the interview -- and the fact that the survey did not cover the whole year, but was fielded predominantly in December 1992. This may lead to a bias in the estimate of visits to health facilities for the whole year if the occurrence of illness or recourse to treatment is subject to seasonal variation. For example, the rural population may be more subject to illness during busy periods, when work effort reduces resistance to disease and increases the risk of an injury. On the other hand, individuals may be less inclined to visit health facilities when ill during certain periods of the year -- when opportunity costs are high (such as during busy periods in the agricultural cycle), or when access to health facilities is difficult (if roads become impassable as a result of heavy rains).

The results of this exercise under Method 1 assumptions are reported in Table 3.4. \(^1\)

Of the estimated 6.6 million health visits by the urban population in FY93, 1.9 million were to hospitals, 2.3 million to health centers, 1.5 million to dispensaries, and 1.5 million to the private sector (including mission facilities). Similarly, visits by the rural population totaling 38.0 million in FY93, were distributed as follows: 10.7 million to hospitals, 13.1 million to health centers, 1.9 million to dispensaries and 12.3 million to the private sector. These results first serve to highlight the importance of private health-care providers in Kenya, even in the rural sector.

Table 3.4a reports the results using Method 2 assumptions. Now, of total health facility visits among the rural population (38 million) are estimated to comprise 12.7 million to hospitals, 10.8 million to health centers, 2.0 million to dispensaries, and 12.5 million to the private sector. These results are of a similar order to those obtaining from Method 1, but they indicate somewhat greater use of hospitals and less of health centers.\(^1\)

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\(^{14}\) Note, the estimate of visits obtained from the WMS refers to visit during the two-week reference period adopted by the survey. These results are therefore scaled up by a factor of 26 to obtain annual estimates.

\(^{15}\) Visits per facility were adjusted by the ratio of visits summed across facility type (unadjusted) to total visits reported by the WMS.

\(^{16}\) The numbers given in Table 3.4 (and throughout the paper) refer to the rural population (and not the WMS sample frequencies). Similarly, all WMS data reported here are weighted appropriately to give population/national estimates.

\(^{17}\) The estimate of the number of urban visits remains the same as under Method 1.
These estimates of facility visits (under both methods) were used as the basis of calculating public sector health subsidies per visit (as reported in Table 3.1), and the public health expenditure incidence across the expenditure deciles (discussed in the following section).

### III.3 Health Expenditure Incidence in FY93

The analysis of the incidence of public expenditures on curative health care is reported for each of the two methods used in estimating health facility use. Table 3.5 reports the incidence of health subsidies across rural expenditure deciles under Method 1 assumptions, whilst Table 3.5b is based on Method 2.

**Health subsidy per capita**

Under the assumptions of Method 1, our estimate of the overall health subsidy for FY93 is KShs. 99 per capita per year in rural areas (see Table 3.5), which represents just under 2% of per capita total household expenditure. The distribution of the subsidy among expenditure groups is relatively unequal, with individuals in the higher expenditure deciles receiving significantly larger subsidies than those in the lower deciles. The top rural decile receives an average of Kshs. 152 per capita as compared with just KShs. 75 for the bottom decile. The allocation of public health expenditure subsidies generally increases with higher order of deciles. Inequality in the distribution of the health subsidy applies also under Method 2 assumptions (see Table 3.5a and Figure 3.1). The estimate of the overall subsidy is now marginally higher (at KShs 101 per capita). The top decile receives on average KShs 134 per capita per year compared with just KShs 66 for the lowest decile.

Taking the estimates from Method 2 (Table 3.5a), the health subsidy of KShs 99 varies significantly across the deciles. Health subsidies represent over 7% of the total expenditures of the bottom decile, and less than 1% for the top decile. These estimates are compared with the results from other studies in Box 5.

The variation in the incidence of the subsidy is mainly the result of two factors. The first is the enormous variation in the per visit subsidy among facility types. As discussed in Section III.1, the per visit hospital subsidy is significantly higher that the subsidies for health centers and dispensaries. This is reflected in the per capita subsidy breakdown (under method 2 assumptions), with KShs 86 (of the KShs 101) being allocated through hospital care, KShs 10 through health centers and just KShs 4 through dispensaries. The second factor is the variation in facility use among the rural expenditure deciles. In general, the rural non-poor tend to visit hospitals more that the rural poor, and the poor tend to use health centers and dispensaries. The reasons for these differences in facility use are complex (see Box 6), but two factors may be identified. First, the cost of travel is likely to be greater to hospitals than health centers, thus discouraging the use of the former (especially by the poor). Second, despite the higher subsidy involved in hospital care, treatment fees are higher than those applied in health centers. The results reflect both of these sources of variation.
The average subsidy by expenditure decile is also reported for each type of facility (under Method 1 in Table 3.5 and under Method 2 in Table 3.5a and Figure 3.1). The inequality in health expenditure incidence is greatest for hospital care, with the top decile receiving on average KShs 142 per capita, compared with just KShs 61 for the bottom decile (under Method 1). Similar orders of magnitude are also reported under Method 2 (KShs 123 compared with KShs 51).
Estimates of the distribution of public health subsidies channelled through health centers suggest a more progressive pattern. Method 1 indicates a greater concentration of the subsidy per capita among the middle deciles (especially the fifth and sixth deciles), whilst the pattern under Method 2 is more consistently progressive. Surprisingly, the per capita subsidy obtained through visits to dispensaries appears to be fairly flat across the deciles (at about KShs 4 per capita for most deciles).

How can these indications of health expenditure inequality be judged? Figures 3.2 and 3.2a present Lorenz distributions of the various health subsidies (under Methods 1 and 2 respectively) as compared with the distribution of total rural household per capita expenditure. The subsidies for both health centers and dispensaries are strongly progressive, being above the equality diagonal. However, the inequality in the distribution of overall health care subsidies is clearly seen to arise from the unequal distribution of the hospital-based subsidy. But since both of these Lorenz distributions are above the Lorenz

Box 5 Comparisons with Other Countries

Comparing expenditure incidence results in one country with others is fraught with difficulties, mostly because the data bases are the methods of computation are likely to vary and make comparisons unreliable. Nevertheless, it is useful to compare the results reported for rural Kenya in this paper with similar analyses conducted elsewhere. Recently, incidence studies have been conducted for Indonesia (World Bank, 1993a), Malaysia (World Bank, 1993b) and the Philippines (World Bank, 1992). These studies analyzed the incidence of health expenditures across the deciles.

<table>
<thead>
<tr>
<th>Benefit Incidence Comparisons</th>
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<td>(Health subsidy as % of expenditure/income among the poorest 20%)</td>
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<tr>
<th>Indonesia</th>
<th>Philippines</th>
<th>Malaysia</th>
<th>Rural Kenya</th>
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<td>Health:</td>
<td>1</td>
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For both rural Kenya and the Philippines, if the poorest 20% of the population were charged the full cost of health services, it would amount to 6% of their total income/expenditures. In Malaysia, where public health services are much more targeted to the poor, the subsidy for the poorest 20% represents 15% of income, and in Indonesia, the health subsidy represents only 1% of income. These comparisons, however, should be made with care, particularly because the Kenya results refer only to the rural sector. It is possible that for expenditure deciles for the country as a whole, the subsidy directed to the poorest two deciles would represent less than the 6% estimate for the rural population alone.

Estimates of the distribution of public health subsidies channelled through health centers suggest a more progressive pattern. Method 1 indicates a greater concentration of the subsidy per capita among the middle deciles (especially the fifth and sixth deciles), whilst the pattern under Method 2 is more consistently progressive. Surprisingly, the per capita subsidy obtained through visits to dispensaries appears to be fairly flat across the deciles (at about KShs 4 per capita for most deciles).
distribution of total expenditure but below the equality diagonal, they may be described are weakly progressive. This is because the redistribution of these subsidies to the population would, ceteris paribus, improve the distribution of income (proxied by total expenditures).

**The targeting of health subsidies**

How well targeted to the poor are public health subsidies? Our approach is to make two sets of comparisons: the first compares the top four deciles with the poorest four deciles of the rural population;[^1] and the second is to compare the richest and the poorest two deciles. Figure 3.3 reports the proportion of total rural health subsidies reaching the poorest 40 percent of the rural population compared with the richest 40% (under Methods 2 assumptions[^1]). Clearly, expenditures on health centers are the best targeted to the poorer groups, with 47% of the total rural health center subsidy being allocated to the rural poor. By contrast, the poor receive only 29% of hospital subsidies, compared with the top four deciles, which gain 48% of total hospital subsidies. Similar results apply to targeting the poorest 20%, which receive 24% of rural health center subsidies, but only 13% of hospital-based subsidies. The top two deciles, on the other hand, receive 26% of hospital subsidies, and only 13% of the subsidy to health centers.

The targeting of overall recurrent expenditures on curative health services is dominated by the poor targeting of the hospital-based subsidy. The bottom 40% (20%) of the rural population receive only 32% (14%) of the total health subsidy compared with 46% (24%) for the top four (two) deciles.

**Alternative scenarios**

The main source of inequality of curative health-care provision in Kenya stems from the unequal incidence of hospital expenditures. If such expenditures could be made more equitable, health expenditure incidence would be significantly improved. But what are the quantitative dimensions of this? Just how much resource reallocation is involved? To gain some understanding of the orders of magnitude involved, we investigate the financing implications of alternative incidence patterns. Specifically, we assume that it is possible over time to reduce the subsidy being paid through hospital care to the top three deciles[^1], thus generating public expenditure savings which could be channelled more effectively to providing care for the poor (say though an improved provision of health center or dispensary-based care). It should be emphasized that this does not imply reduced hospital care for the rich -- rather that the hospital care they receive is financed by non-public means, for example through private health insurance. The policy instruments for making this

[^1]: This corresponds to the preliminary estimates of rural poverty in 1992 reported by Mukui (1993).

[^1]: Results obtained from Method 1 assumptions were very similar.

[^1]: The choice of the top three deciles is obviously arbitrary, but it is based on the per capita subsidy these three deciles are estimated to have received through hospital visits. This was noticeably above other deciles (apart from the 6th decile).
change (such as an increase in health insurance in general, or expanding the role of the NHIF in particular, encouraging the better-off to arrange their own hospital-care financing) are likely to take some time to have an effect. However, the computations presented here give some order of magnitude of the longer term effects of such a policy. They provide clues about potential policy targets.

First, assume that the top three deciles receive a hospital-based subsidy which is equal to the average for the population as a whole. This means that instead of receiving a subsidy of KShs 109.81 per person per year by virtue of their hospital visits (see Table 3.5a), they gain only KShs 86.41 per person per year. This would be achieved if the number of publicly financed visits to hospitals by these deciles was reduced by about 20%. Such visits would then total only 3.8 million per annum as opposed to the estimated 4.8 million (a reduction from 38% of all hospital visits by the rural population to 30%). This would release resources amounting to KShs 135.4 million per annum which could then become available for programs used by poorer groups. This amounts to some 7% of the total annual recurrent budget spent on hospitals and to about 40% of total recurrent spending on health centers and dispensaries. Recall that such a gain is achieved by reducing the use of publicly funded hospitals by the top three rural deciles alone by only 20%.

Alternatively, a more dramatic redistribution policy would entail reducing the per capita annual hospital subsidy received by the top three deciles to equal that currently received by the poor – as represented by the bottom four deciles. The subsidy would be reduced from KShs 109.81 to just KShs 63.55 per person per year. This could be achieved by reducing the number of publicly financed hospital visits by the top three deciles by 2 million each year, or by just over 40% (from 4.8 million to just 2.8 million). The share of the top three deciles in total hospital visits by the rural population under this scenario would fall to just 22%. This would release KShs 267.6 million (or 14% of total annual recurrent expenditures on public hospitals) for more pro-poor public health expenditures. This represents over 75% of total spending on health centers and dispensaries in 1991.

The potential savings therefore of reducing the reliance of the top deciles on publicly financed hospital care are considerable. To illustrate the significance of this, assume that such savings were spent on the provision of care through health centers, with its distribution to the deciles based on the assumed pattern of health center use derived using Method 2. To what extent would such changes influence the incidence of health sector spending overall?

Table 3.6 reports the implications of the two scenarios for health financing incidence in rural Kenya. In the first scenario, the per capita annual subsidy allocated to the top three deciles through their use of publicly funded hospital care is reduced to KShs 86.41 (the mean per capita subsidy for the population as a whole). The resources that are saved are then assumed to be reallocated to expenditures on health centers, with the result that the health center subsidy (previously estimated to be just KShs 17.85 per visit under Method 2

\[21/\] All computations here are based on Method 2 assumptions.

\[22/\] These and other savings estimates are expressed as proportions of the public expenditure figures reported in Table 3.1.
assumptions (see Table 3.1) would increase to KShs 28.20 (assuming no change in the pattern of visits to health facilities).

The hypothetical health expenditure incidence across the deciles emerging from these assumptions is given in the top panel of Table 3.6. The effect on the distribution of health expenditures is striking. The bottom four deciles receive on average KShs 86 per person per annum through health care financing as a whole, compared with KShs 79 with no reallocations. The top three deciles are now shown to receive only KShs 101 per capita per annum (compared with KShs 121 previously). This significant narrowing of the gap between the incidence of health expenditures to the rich and the poor is achieved with a reduction of only 20% in publicly funded visits to hospitals by the top three deciles alone. Whereas hospital-based care was estimated to absorb 86% of the total per capita health subsidy (Table 3.5a), under this alternative scenario, the share falls to 80%. On the other hand, the per capita subsidy channelled through health centers increases from KShs 10 per annum to KShs 16. Given the progressive pattern of health center use, this reallocation of resources significantly improves the distribution of health expenditure incidence. Targeting to the poor is noticeably improved, with the share of total health expenditures reaching the bottom 20% (40%) increasing to 16% (35%), and that to the top 20% (40%) falling to 21% (41%).

Alternatively, assume that the per capita hospital subsidy to the top three deciles is reduced to only KShs 63.55 (the subsidy estimated to be paid to the bottom four deciles). The funds so released would raise the potential subsidy to health centers to KShs 38.31 per visit, with even more striking effects on health incidence (see the bottom panel of Table 3.6). Under this scenario, the poor (bottom four deciles) are shown to receive on average KShs 93 per person per year through the health system as a whole, which compares with just KShs 79 with no reallocations. Health expenditure incidence to the rich falls from KShs 121 without any reallocation to just KShs 83, making public financing of the health system significantly more progressive. The share of the total health subsidy absorbed by hospital based care now accounts for only 74% of the per capita health subsidy. Targeting to the poor improves significantly under this scenario: the share of total health subsidies received by the poorest 20% (40%) increases to 18% (38%), compared with 17% (37%) for the top two (four) deciles. By reducing the number of publicly-funded visits to hospitals by the top three deciles by 40%, the incidence shares to the top and bottom deciles become more or less equal.

**Policy implications**

What do these results suggest for public-sector health policy in general, and public expenditure allocations within the health sector in particular? There are two striking inequalities emerging from our analysis of the incidence of health care in Kenya. The first inequality is the dominance of hospital service delivery in our accounting of implicit curative health subsidies in Kenya. On average, for rural areas, the provision of hospital based curative care involves a subsidy of KShs 86 per capita per annum, which compares with just KShs 10 per capita per annum for health centers (under Method 2). Second, health-care subsidies taken as a whole offer greater benefits to better-off groups compared with the poor. On average, the top three deciles received KShs 121 per person per year from
their use of curative health services, which compares with just KShs 79 for the lowest four deciles, again under Method 2 assumptions. The top decile is estimated to receive over twice the subsidy per capita received by the bottom decile. This inequality across the deciles is entirely a result of the unequal use of hospital services -- the use of other facilities results in a more progressive allocation of health expenditure subsidies. Yet, public expenditures are such that the per visit (and per capita) subsidy on hospital care is significantly greater than other curative facilities.

Health policy and reallocations of public health expenditures should be directed at reducing these two sets of inequalities. In particular, two main policy implications may be derived. First, there is a need to reduce the per visit subsidy allocated to hospital care, and to increase the subsidy to health centers (and possibly dispensaries). This can be achieved through widening the cost-recovery differential between hospital and health-center financing (that is increasing cost recovery in the hospital sector relative to cost recovery in health centers), and through increasing expenditure allocations to health centers. The revisions in the scale of cost-recovery charges which were applied in July 1993 do not make such a correction, with charges being imposed on health center treatment, and the differential with hospital treatment charges being generally unchanged. Increasing the role of the NHIF would also serve to reduce the public subsidy required in the provision of hospital care for the better-off.

Second, it is crucial that the access of the poor to curative health care be improved. Since travel and opportunity costs are likely to make it difficult for poorer groups to gain access to hospital services (see Box 6), it is important that the use of health centers by the poor be encouraged. This may require an improvement in the quality of service available at health centers: in terms of the availability of drugs and of the quality of staffing (including the provision of medical staff capable of providing diagnostic and prescriptive services). Box 6 discusses the key role played by the quality of medical care in encouraging use of public health facilities. Channelling the subsidy element of curative care through health centers and dispensaries rather than through hospitals will help target the public provision of health care to the poorer groups in rural Kenya.

The process through which public resources can be re-allocated to health facilities utilized by the poor must inevitably involve encouraging the better-off groups in Kenyan society to be increasingly responsible for their own financing of hospital care, very much as appears to have been the case in recent developments in Malaysia (Hammer, 1992 and World Bank, 1993b). Our analysis suggests that such a policy is likely to make significant resources available for health-care services which would benefit the poor. The resources generated by such a policy represent a significant share of current spending on health centers and dispensaries. The instruments available to implement the policy would not only include increasing user charges for hospital care (with appropriate targeting for the poor), but also encouraging the development of the health insurance sector. An expanded role for the NHIF would also result in lower subsidies to better-off groups, thus creating opportunities to divert health financing to care that benefits the poor.

In short, the analysis underscores the need for a major reallocation of expenditures within the system of curative health care in Kenya. Public resources should be directed increasingly towards those curative health care facilities to which the poor have better
access. User charges for the public provision of hospital services should be raised significantly, thus reducing the drain of tertiary health care on the central government budget. Care should be taken when increasing user charges to ensure that the waiver scheme works effectively in targeting low-cost or free hospital services to the poor. This issue of user charges is considered in further detail in the following section. In addition, the encouragement of health insurance (as provided by the state through the NHIP and through the private sector) would have the desirable effect of releasing resources which could then be targeted to the poor.

**Limitations of the incidence analysis**

The incidence findings discussed in this study are preliminary and have several limitations. The main limitation stems from the fact that the WMS did not contain information on the type of facility visited by individuals when they are sick (see Box 4). It was therefore necessary to impose onto the WMS a pattern of facility utilization derived from other surveys, which limited the analysis in many ways. Only rural areas could be convincingly covered, and the analysis had to be conducted entirely on the basis of decile means. Given the concentration of most health facilities (and especially hospitals which involve the highest levels of public expenditure subsidy) in urban areas, and the relatively high income levels in urban areas, our analysis is clearly abstracting from an important source of inequality in public expenditure incidence. By omitting the urban sector, the study has ignored a major source of health care inequality, which should be corrected in further work.

With revised codings to the health questions in the second round of the WMS, the health care subsidies can be directly allocated at the individual level, and without imposing patterns of facility use derived from other surveys. An analysis based on the allocation of subsidies to individuals would permit a more refined estimate of incidence (for example, it would then be possible to take into account regional variations in health subsidies; it would also be possible to deal with gender differences).

Secondly, the data which were readily available from the MOH did not permit the separate estimation of public health expenditure subsidies for the different categories of hospital (provincial, district and sub-district). It was also not possible to distinguish between outpatient and inpatient subsidies. Ignoring these sources of variation in health-care subsidies will also imply an underestimate of the inequality of health-care incidence. This is because poorer groups tend to use facilities which involve lower levels of subsidy — outpatient rather than inpatient treatment in district rather than provincial hospitals.

**IV. Cost Recovery and the Ability of the Poor to Pay**

The previous sections have demonstrated that poorer households have lower rates of curative health care utilization compared with richer households in Kenya, which results in lower allocations of health care subsidies to these groups. This section explores further the issue of how the access of poorer households to health services can be improved. It
examines to what extent the current system of health cost recovery may be adversely affecting the use by poorer households of health facilities.

**Evidence from the WMS**

Costs of health care facing the individual and household extend beyond simply the treatment charges imposed by the health facility. Other costs include transportation to the facility and the opportunity cost of the time taken. There are also the costs of medicines that are prescribed as a result of the treatment. The Welfare Monitoring Survey obtained information from households about the expenditures that had been incurred by the household on health care during the previous year. It is unclear what components households will include in responding to this question, but they are certain to report (for both private and public health care received) treatment costs, costs of medicines and possibly transport cost to the facility. To what extent do the results of the WMS suggest that the poor are facing a burden of health cost which is difficult for them to bear, and which might discourage their use of health facilities?

If health charges become too high, they are likely to discourage facility use, and to lead to a fall in total revenue generated by the facility involved. At what point does the demand for curative health care become elastic, so that any increase in charges would lead to a significant reduction in the use of the facility? Estimates from studies in other countries (in Côte d'Ivoire, Pakistan and Peru -- see World Bank, 1993a, Gertler and van der Gaag, 1990 and Alderman and Gertler, 1989) suggest that when the share of health expenditures in total non-food expenditure per capita rises above 5%, demand becomes elastic. This gives an upper bound of the ability of households to pay treatment and other health charges. Table 4.1 reports estimates of mean health expenditures as reported by the WMS 1993. Health expenditures appear to be particularly burdensome for the rural poor, with the bottom four rural deciles spending around 5% of non-food expenditure on health. Such data offer insights into why the utilization of the poor of facilities which impose charges remains low in Kenya. Essentially, the burden of health-care costs is high for them.

The implications of the WMS findings are either that public health care services are very costly to the poor, which explains their low-utilization rates, or that the poor cannot gain access to public services (by virtue of their distance from the household), so that they are obliged to obtain health care services from private/traditional providers. It is difficult to make a judgement on this from the WMS since the survey did not distinguish among the various components of health expenditures. However, an indication of which of these explanations applies may be derived from estimating separately the orders of magnitude involved in public health-care expenditures made by households. Using MOH data on total revenue from treatment and other fees at public hospitals on a per visit basis, an estimate may be made of expenditures on public-health treatment by decile. This is estimated as the per visit revenue (for FY93) multiplied by the total number of visits by decile (derived under Method 2 and as reported in Table 3.4a). The results are given in the 8th and 9th columns of Table 4.1.

These data show a much lower level of health expenditure than that reported by the WMS (in most cases less than 1% of non-food expenditure), which suggests that the higher
level of expenditure reported by the WMS arises from private/traditional treatment. This in turn suggests that the reason for the relatively high levels of expenditure by the lower deciles on health care arise from the inaccessibility of publicly-provided curative health care of sufficient quality, and the consequent need for such individuals to seek treatment from private/mission health-care providers, or from traditional sources. There is some support for this coming from the WMS. Of those who were recorded sick, 36% responded to the illness by simply buying drugs directly without consulting a medical practitioner. And evidence from other surveys indicates that about a fifth of those ill visit a private medical facility. In other words, about a half of the rural sick in Kenya tend to obtain treatment in the private sector rather than going to a public curative facility. Such orders of magnitude could explain the low estimate of expenditure on public curative care (estimated under Method 2 assumptions of facility use and MOH data on facility revenue) as compared with the WMS results for health expenditure as a whole.

This conclusion, however, is highly tentative. The basis on which the estimates are made is highly uncertain and subject to a number of sources of error (especially the estimate of the total number of visits by facility, and its distribution across the deciles: the results are likely to be sensitive to the assumptions made in generating visit estimates).

The alternative (non-WMS) estimate of health expenditures directed to public health-care providers is useful also in gaining some sense of the likely impact of health-cost recovery schemes currently under implementation. Recall that the revenue estimates used in generating the FY93 estimate of expenditure on public services is based on the system of user charges in place in January 1993. Since then, the coverage and scale of the charges has increased (see Box 2). Are these increases likely to place a burden on the poor, and are they likely as a result to withdraw even further from the use of publicly-provided care? Table 4.1 (final two columns) estimates an alternative schedule of health-care costs based on increased user charges and coverage, but assuming an unchanged pattern of facility use (ie Method 2 assumptions). Comparing FY93 with FY94 results suggests a significant increase in the burden of health care costs among the lower rural deciles. Whereas under the treatment and other charges as of early 1993 the lowest decile was estimated to spend 1.4% of non-food expenditure on health, this increases (under existing facility use) to 2.6%. For the top decile, the increase is only from 0.14% to 0.19%.

The data in Table 4.1 suggest that increases in cost recovery are certain to have a disproportionate effect on poorer groups. This is because much of this increase comes from treatment fees in health centers, which are used disproportionately by the poor. The estimates reported in Table 4.1 assume no change in the pattern of facility use. The question remains, therefore, as to whether increases in the scale and coverage of cost recovery in the curative health sector will discourage use of public health facilities, especially by poorer rural groups. A key to the answer lies in whether the increase in treatment fees is associated with an improvement in the quality of care provided. Mwabu et al (1993) have concluded that the quality of service (as represented by the availability of drugs) is an important determinant of facility use (along with nearness to the facility). Box 6 gives further details. In short, if increased cost recovery is accompanied by improvements in quality of service, it is unlikely that there will be significant declines in facility use.
Even if quality improvements act as an incentive for continued facility use, the estimates reported in Table 4.1 suggest that the increasing burden of health care may be too much for the poorest households. The bottom rural decile already spends almost 6% of its non-food expenditure on health. For these poorest groups, increases in cost recovery are likely to discourage use, and lead to increased self-treatment. Whilst a case can be made, therefore, to increase cost recovery as a source of revenue for health-care financing, these results serve to underline the burden such schemes will have on the poor if more effective targeting schemes are not introduced.

**Box 6 Facility Use and Quality of Care in Rural Kenya**

The pattern of response to sickness in the household depends on several factors. It can depend on the characteristics of the sick themselves: their age, gender, nature of illness, and so on. It will also vary with household characteristics, including the location of the household and its income. These factors can be expected to change only slowly over time, and to be less directly responsive to health policies. However, facility use also depends critically on the characteristics of the facilities themselves: characteristics that affect the ‘price’ of the service provided (including the distance from the household, the treatment and other fees that are charged by the facility), and those which affect the ‘quality’ of the service provided (especially the availability of drugs). The observed pattern of facility use adopted in the incidence analysis, and in the assessment of the burden of health-care costs, is therefore a result of the interaction of these factors at the time the estimates were made. This box considers how sensitive these patterns might be to changes in these determining variables, particularly those which are directly influenced by health policy.

In a recent study, Mwabu, Ainsworth and Nyamete (1993) have examined the determinants of health facility use among households. They combine two data sets from Meru District, which is a rural area in Eastern Kenya. The first is derived from a random sample of 315 households (covering 1721 individuals), and the second is based on a survey of the various health facilities which serve these households (covering eight government health centers/dispensaries, two mission clinics and five private clinics). These two sets were combined in an analysis of facility use by households.

Maximum likelihood estimates were obtained to explain the pattern of facility use (whether a sick individual sought treatment in a public, mission or private health facility, or simply chose self treatment (the latter including treatment by a traditional healer). Explanatory variables included gender and education of household member, household income, number of drugs available at facility, number of days drugs were not available in the last 180 days, distance of the household to the facility, and outpatient fees charged by the facility. Household income was found to exert a positive effect on the propensity of the household to use mission or private facilities relative to self treatment, while higher levels of education of the household member encouraged greater use of public health facilities relative to self treatment. Price variables (distance to facility and fees) and quality variables (drug availability) generally had correct signs. Estimated coefficients on drug availability were not statistically significant, but this was attributed to the two-way causation involved: high levels of demand caused low levels of drug availability, and low availability in turn discouraged facility use.

There are two key implications of their findings. First, the pattern of facility use is sensitive to health policies. Reducing the distance to government health facilities will likely raise demand, as will increasing the number of drugs available. Second, the results indicate unambiguously that private and mission health providers are important sources of medical care for high income earners in rural Kenya. This implies that improvements in public health facilities would benefit the poor proportionately more than the rich.
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