

User Charges for Quality Improvement in Public Health Care Services in Tanzania: Quid pro Quo or Deterrence?

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Abstract: There are concerns on whether user fees in public health services are the appropriate means of improving both quality of the services and accessibility to the same. As a follow-up research, we set out a study to bring out the impact of fees on quality and attendance in health facilities in Tanzania. The study examined relevant provider and household surveys that were carried out at different points of time in order to compare changes in user fees, quality and attendance.

The results suggest three major conclusions. Firstly, it is that user fees per se do not matter; rather, it is the expenditure from the user fee revenue that matters most in the decision to seek care. Secondly, there is a general indication that government grants are fungible to user fees; and as a result, the fees constitute an increase in the price of public health services. Thirdly, delivery efficiency features as the central determinant factor in the interaction between user fees, quality and usage; implying that unit costs should be considered in the process of introducing user fees.

INTRODUCTION

Proponents of user fees argue that the quality of public health-care services in many poor countries is so low that majority of people are willing to pay a small fee for their improvement (Mwabu, 1985; Griffin and Shaw, 1995; Smith and Rawal, 1992). Introduction of fees in public health care is commonly preceded by a general assessment of people's willingness-to-pay for improved quality (Sanjay, 1995). The conclusions from pre-user-fees utilization assessment studies in public health facilities show that people are generally prepared to contribute towards improvement of quality of the services (Litvack and Bodart, 1993; Forsberg, 1994; Mujinja and Mabala, 1992). Hence, it is proposed that small fees could be charged in public health facilities, and in turn improve quality and access to the services. In this respect, there are two concerns that have prompted the this paper; one is whether the implied reciprocity holds, and second is the negative effect of fees on usage in public health-care facilities.

There are several studies that bring out the effect of user fees on household decisions

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regarding health care seeking behaviour (Mwabu and Wangombe, 1995; Mushi, 1995; Booth *et. al* 1990, etc); but these studies do not demonstrate the real impact on quality and usage from the providers' point of view. We do not know whether the decline in demand is due to a real increase in the price of public health care (income effect), or simply that the improved quality is not affordable from the consumer's point of view (the substitution effect). Two issues arise for investigation; one is whether quality of public health care has improved as a result of the 'small' fees that have been introduced in public services; and the second is whether user fee and quality have had a positive effect on usage. This will throw more light on the understanding of the impact of user fees on quality and usage in health facilities.

THEORETICAL FRAMEWORK

In principle, a social planner is concerned with the quality of health care in order to enhance social welfare. S/he chooses to impose a fee on public health care utilization, which is determined by pre-desired rate of quality change. The higher the level of the desired quality change, the higher would be the user charge (Mushi, 2001). Hence, the planner confronts a potential conflict of social objectives. On the one hand, she would want to provide improved quality health care and charge consumers directly; but at the same time she

should not deny public health care to the disadvantaged social groups. Apparently, the social planner approaches the problem by assessing people's willingness and ability to pay for health care, before setting the level of fees. She then chooses to impose a user charge considered 'small' or affordable by the members of the catchment community and promises quality improvement in public health-care. In effect, therefore, the quality improvement and the user fee should be *quid pro quo*; the patient pays and in return receives better health care. There are two apparent concerns here: the first is whether or not in the event of illness, people will seek care and pay the fees in public facilities; and the second is whether usage would increase with the user fee as quality improves. The first concern has been dealt in a number of studies on demand for healthcare (Mwabu and Wangombe, 1995; Mushi, 1995; Booth *et al* 1990) *e.t.c.*. The second concern forms the subject matter of the discussions in this paper.

Measuring Quality of Healthcare: Problems and Potential

Mushi (2001) developed a theoretical framework that relates user fees, quality and delivery efficiency in public health facilities. His study found that, theoretically, delivery efficiency matters in determining the effects of user fees on usage in health facilities. He adopted the narrow definition of quality as more of the service per episode of treatment, and derived the general conclusion that user fees might change the health care-seeking behaviour in favour of informal sources of care.

However, measurement of quality in health-care facilities is a difficult, albeit extremely important problem facing researchers (Gowrisankaran and Town, 1999). There are three broad categories of measures of quality that are commonly used in studies of health care: structural measures (structural quality), process measures (process quality), and outcome-based measures. This categorization is a result of data scarcity and complexity in quality assessment.

Structural and process quality are difficult to measure due to problems regarding normalization of measurement. For example, the quality of 'required standard' hospital physical infrastructure might differ, not only across geographical regions, but also according to the nature of illness.

Pre-eminence of Process Quality

Of the three aspects of quality of health care, process is emphasized and given pre-eminence because it is easier to assess than outcome quality, and more likely to be validated in terms of outcomes than structural quality (Gilson, 1992). Thus, the assumption is made in process-based definitions that there is quality if the medical care services provided conform to accepted standards and have been previously proven to bring about positive outcomes (Shortbridge, 1974). This introduces efficiency and effectiveness considerations (benefits achieved when an intervention is used) in the health care delivery system. In this respect, providers of health care are expected to deliver treatments, which are acceptable to those in need (Palmer, 1976), and as a result, process quality focuses on provider-patient interaction. However, process-based quality has been criticized for placing too much emphasis on health professionals' views (Shortbridge, 1974; Palmer, 1976). Quality assessment should not only focus on the standards set but also on patient satisfaction. In support of this Black (1990) argues that a quality service is one which provides effective care that meets everyone's needs.

Gilson (1992) contends that process and structure together determine levels of quality. Aspects of structure that are assessed include the condition, cleanliness and adequacy of building; the availability of drugs and the availability and adequacy of equipment, working staff, support provided, services available, clinical organization, and record-keeping.

Problems of Outcome-based Quality Measures

Outcome-based measures of quality are

complicated by the problem of selectivity bias. We quote Gowrisankaran (1999: 2):

...simply put, hospitals may differ in the severity of illness of the patients they treat, as higher quality hospitals may attract a sicker population. Thus, the mortality rates for a hospital will have at least two components: one component reflects the severity of illness of the patient they treat and the other component reflects the quality of the care they provide. In econometric terms, if a patient's choice will be endogenous, a standard regression analysis will give inconsistent estimates of the hospital-specific contribution to mortality.

Obviously then, comprehensive measurement of quality of health care is tedious and cumbersome. Most studies on this subject use proxy indicators for quality (Collier and Dercon, 1998). For example, expenditures on provision of medical care by health facilities is commonly used as a measure of quality (Ilse, 1998).

The question here is not to rank facilities, but rather to determine whether fees have had an impact on quality and in turn improved usage in public facilities. We continue by outlining a framework of empirical analysis, which is adopted to link together fees, quality, and attendance in health care facilities before carrying out the assessment.

FEES, QUALITY, AND DEMAND IN PUBLIC HEALTH FACILITIES

Analysis of the impact of user fees on quality of care in health facilities requires information on both additional revenue and incremental quality resulting from the fees. Since the rates of fees are the same across each category of public facility in the data we intend to use, we could put the incremental quality as one of the regressors in a logit model and single out the quality effect from the provider's point of view. Invariably, we could regress the incremental quality on household attendance in hospitals after correcting for inter-temporal and location-specific community morbidity rates. Unfortunately, things are not so

easy; there are three problems that would emerge. The first would be identification and measurement of quality changes; the second is separation of the incremental quality attributable to user fees as distinct from general hospital performance; and the third would be the estimation of the effect of this quality on household health-care seeking behaviour. We shall discuss these problems to sort out whether there are possible ways to carry out the quality assessment.

Identification and Measurement of Quality Changes

In order to identify changes in quality that are due to user fees, we need to characterize the state of performance or quality in each health facility before and after the introduction of user fees. This inter-temporal comparison would be easier if quality at every stage of treatment was easily measurable and in turn be aggregated across all stages.

Unfortunately, and as indicated earlier in this paper, the task is much more complicated. Before the introduction of user fees, public health-care services in Tanzania were thought to be poor. The facilities were characterized by persistent drug shortages, poor physical infrastructure, lack of medical equipment, shortages of qualified staff, and poor incentives (Leonard and Mlinga, 2000). With the introduction of fees, public hospitals under their respective committees, were given mandate to make decisions on expenditure of the revenue from user fees. Since collections from fees were not expected to crowd out hospital-specific and general-government subsidies, the additional revenue would then alleviate the problems facing public health facilities.

In Tanzania, user fees were introduced from July 1993. In principle, after a period of ten years, we should have seen quality enhancement in public facilities, *ceteris paribus*. We could then make *ex-ante* and *ex-post* quality assessment from the introduction of user fees. However, more complications arise when looking at the components of quality. For example, drugs and

other hospital supplies are bought and consumed according to need. And as a result, any existing stock does not give a clear indication that drug supply has changed. Moreover, drug needs comprise various types and forms, which make it difficult to measure. In addition, quality of hospital buildings is also difficult to compare. For example, space and painting of buildings have different units of measurement.

Notwithstanding the problems, and in view of the limitations that quality assessment should focus on both providers and patients (Shortbridge, 1974; Palmer, 1976; Black, 1990); we carry out quality assessment at two levels: the providers and the patients. We start with providers, by considering expenditures as proxies to quality, before turning to patients' views.

Providers: Expenditure Decompositions as Proxies of Quality

Using expenditures as a proxy for quality will require separation of hospital spending of user-fee revenue from total hospital spending on provision of health care. However, given the structure of the management of public facilities in Tanzania, there is no need to worry about this because decisions on expenditure from user-fee revenue is decentralized, and the accounts are kept differently from general hospital accounts.

We know the time when fees were introduced in public health facilities, and we have data on revenue and expenditure on different supplies in public hospitals. Data on monthly attendance in public facilities for the period 1991-2000 are also available. How then can we make use of this information to assess fees, usage and quality changes?

We look at two things: per-patient general hospital expenditures of the user-fee revenue, and the spending on the directly patient-felt-components of quality, in order to link hospital spending to patient's satisfaction. Per-patient spending analysis permits us to draw some useful insights regarding the quality of health care, inefficiencies in decision-making, and possible diversion of user-fee revenue from re-investment.

It also reflects exemptions and potential fraud in the program. Item-specific spending allows the tracing of patients' tastes and ultimately satisfaction with hospital services. Observed over different periods of time, the characteristics of hospital expenditure would, *inter alia*, explain changes in patients' attendance both in charging and non-charging health facilities.

Household Quality Assessment

Beneficiaries of incremental quality from extra hospital spending are patients or households. Their views on quality of health care cannot be ignored, even if difficult to quantify, for the reason that they are the decision making unit from the customer point of view. Hospital attendance, therefore, depends on choices made by households, which is a function of both *ex-ante* and *ex-post* quality realization. We allow for household assessment of hospital services in order to study their desired quality, which in turn influences their choices of the providers of health care. A combination of both hospital patterns of expenditure and consumers' assessment of quality should provide an explanation of the inter-temporal changes in hospital attendance, given that the facilities are homogeneous in other factors.

ESTIMATION PROCEDURES AND THE RESULTS

The first question we try to answer from the available data is:

what was the immediate impact on attendance in health facilities after the introduction of user charges in a formerly free public health care regime?

Since the dates of the introduction and review of user fees are provided in the data, we can trace inter-temporal changes in patients' attendance in both charging and non-charging facilities to gauge the effects of user fees and quality. This would give us a clue to the income effect. The results for the answer of question one constitute panel 1 of this paper.

The second follow-up question is whether user fees have improved quality of public health services and attendance. We compare hospital expenditures from user-fee revenue and patients attendance to determine performance in health facilities. This forms panel 2 of the results. Knowing that attendance and revenue suffer from seasonal variations in morbidity, we work with monthly averages rather than monthly or annual totals. We would not be worried about inflation since all facilities in the data were subject to the same level of inflation and periodic reviews of user fees.

Panels 1 and 2, therefore, should be able to give us the first signals regarding quality improvement and usage/access to health care. With expenditure decomposition it is possible to link item-specific expenditures with trends in attendance. This would give us a second signal regarding patients' tastes and quality improvement. We also need to construct a control panel with corresponding information from private facilities to trace any possible reciprocity between different categories of health facilities. This comes as panel 3.

The expenditure method of measuring quality, albeit crude, does not tell us anything regarding health-status outcomes, which is a crucial dimension in completing the circle of assessment of quality improvement in health facilities. However, we can infer this information from households which sought care from the facilities. Facilities with good records of health-status outcomes from the households' point of view would be described as delivering more quality relative to their counterparts. This assessment constitutes panel 4, and raises our third question: To what extent are people satisfied with the improvement in public health services? We examine both cross-sectional and inter-temporal household assessment of quality in health facilities. We then relate hospital spending and quality assessment, but also infer inter-temporal changes in quality and attendance associated with the user fees. This analysis will give us a clue to the substitution effect.

Panels 1- 4 provide us hospital information on usage and expenditure on quality improvement. We could seek to explain changes over time in hospital attendance as a function of hospital expenditure on quality. This would allow us to regress the covariates of quality on changes in usage. Hospital expenditures and household quality assessment could also be used to infer delivery efficiency.

Potential Discrepancies and Econometric Problems

Hospital Patients' Attendance

The total number of patients seeking care in health facilities depends not only on user fees and quality or provider characteristics as outlined in our methodological approach, but also on the characteristics of patients/households, population changes, and morbidity rates. However, household characteristics would not be so much a problem in inter-temporal analysis because their effects remain constant over time. Changes in morbidity rates are a problem; they influence the total number of patients seeking care and usage in health facilities. This implies that in the context of our analysis, the changes in patients' attendance that we try to explain by user fees and quality are also potentially affected by changes in morbidity rates. However, by looking at the general morbidity rates and patients' attendance in both charging and non-charging facilities in Tanzania, we might be able to determine the extent of this problem in our results. Moreover, we also know that population increase under the same economic conditions is unlikely to reduce morbidity. In this context, we recognize that, Tanzania had a continuously increasing number of patients at the rate of ten per for the last ten years, before the introduction of user fees in public hospitals. Hence, it is plausible to assume that morbidity rates for Tanzania for the period 1990-2000 did not decrease.

Hospital Expenditures

Expenditures are not generally good measures of

quality in health facilities because they do not necessarily imply quality delivery. Furthermore, in a situation of mixed financing, as is the case with public facilities, which charge user fees, there is a potential fungibility of user fee revenue to government subsidies. We do not have information on government hospital subsidies but we assume that any move to change these subsidies has the same effect across all the public facilities. We also consider it plausible to exclude the years 1999/2000-2001/2002 because the period recorded significant donor funds that might distort our results.

Household Quality Assessment

Value judgements in quality are potentially inconsistent because individuals/households are heterogeneous in a number of characteristics including the general knowledge on allopathic health care. However, averaging the response values over large samples gives a more consistent index for assessing facilities than relying on hospital expenditures alone.

The Data

There are three sets of surveys that comprise these data. The first is information from a 1998 household survey carried out in two regions in Tanzania, Coast and Kilimanjaro. The survey involved household assessment of quality in selected health facilities. The second set of data is information on health care facilities' administration, staffing, attendance, user fees, expenditures, medical stocks, equipment, etc. for selected facilities from the two regions. The health facility survey was carried out parallel with the household survey in 1998. As mentioned earlier, the two surveys match each other by including facilities in which households sought care and those which did not, within the same catchment area.

The third set of data comes from a similar survey (1995), which included the sample regions of the 1998 survey. The survey was designed to interview patients and the clinics/hospitals in

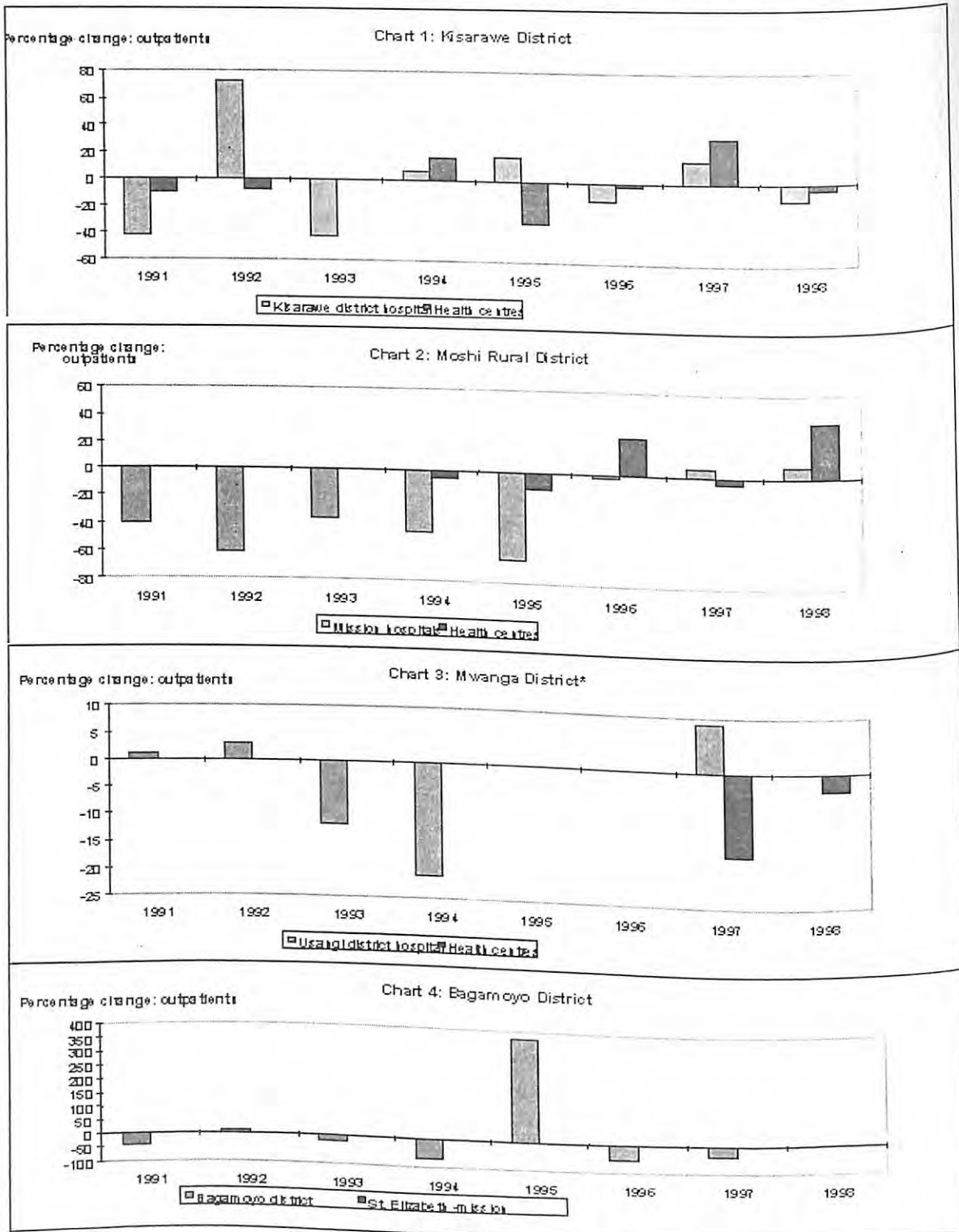
which they chose to seek medical care. The ultimate purpose was to assess preliminary impact of user fees on accessibility, affordability, and quality in public health care. It contains information on both attendance and household quality assessment. Nevertheless, we discuss our results with caution and point out any potential pitfalls where they arise.

The Results

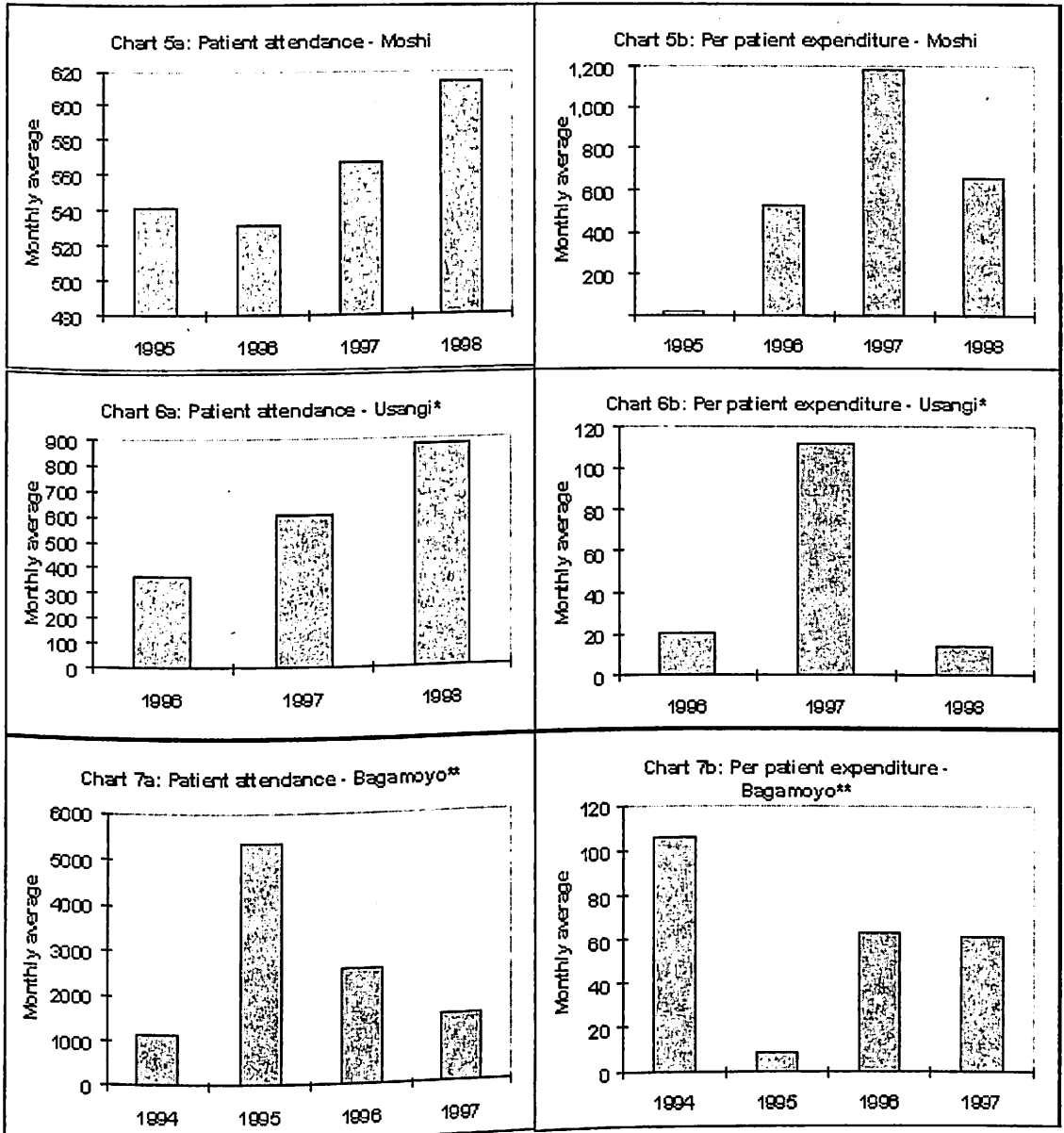
Fees, Expenditure and Attendance in Health Facilities

Charts 1-4 in Panel 1 show inter-temporal changes in attendance in charging and non-charging health facilities in four districts from two regions in Tanzania; Kisarawe and Bagamoyo (Coast Region), and Moshi rural and Mwanaga (Kilimanjaro region). Three categories of health facilities are distinguished in Panel 1. The first is government district hospitals which charge user fees. The second is health centres, which are sub unit government health outlets, and have not yet introduced user fees. The third category is mission facilities that belong to religions organizations with own arrangement for user fees and management; these are also classified as private health facilities. The charts in Panel 1 show that in 1993/94, when user fees had just been introduced, there was a downward shift in average monthly patients' attendance. Chart 2 shows usage for two mission hospitals in 1995, Kibosho and Uru, which introduced fees in 1991. The post-fee era saw some facilities improving their attendance while others worsened. Bagamoyo hospital was the most affected (Panel 1, Chart 4). We note further that towards the end of 1996, fees in public and mission health facilities were reviewed in order to induce effective quality improvement. Usage in Mission service outlets improved dramatically (Panel 1, Chart 2). Also, Usangi and Kisarawe public hospitals had an upward shift in attendance. What then explains such an upward shift in attendance?

Panel I: Patients' attendance in charging and non-charging government facilities in selected districts.



Panel 2: *Government district hospital expenditure from user-fees revenue and patients attendance (* stands for per-patient spending in Tshs and patients' attendance)*



Panel 2 compares hospital attendance and per-patient expenditure from user-fee revenue. Mission hospitals appear to have performed better than government hospitals although the fees were the same. Per-patient expenditure and usage remained stable and higher in Missions than in public facilities; indicating that the quality change had a positive effect on patients' attendance. But using the charts themselves, it is not possible to explain how hospital spending affects attendance. Therefore, expenditure decompositions into the different components of quality might help to explain the differences.

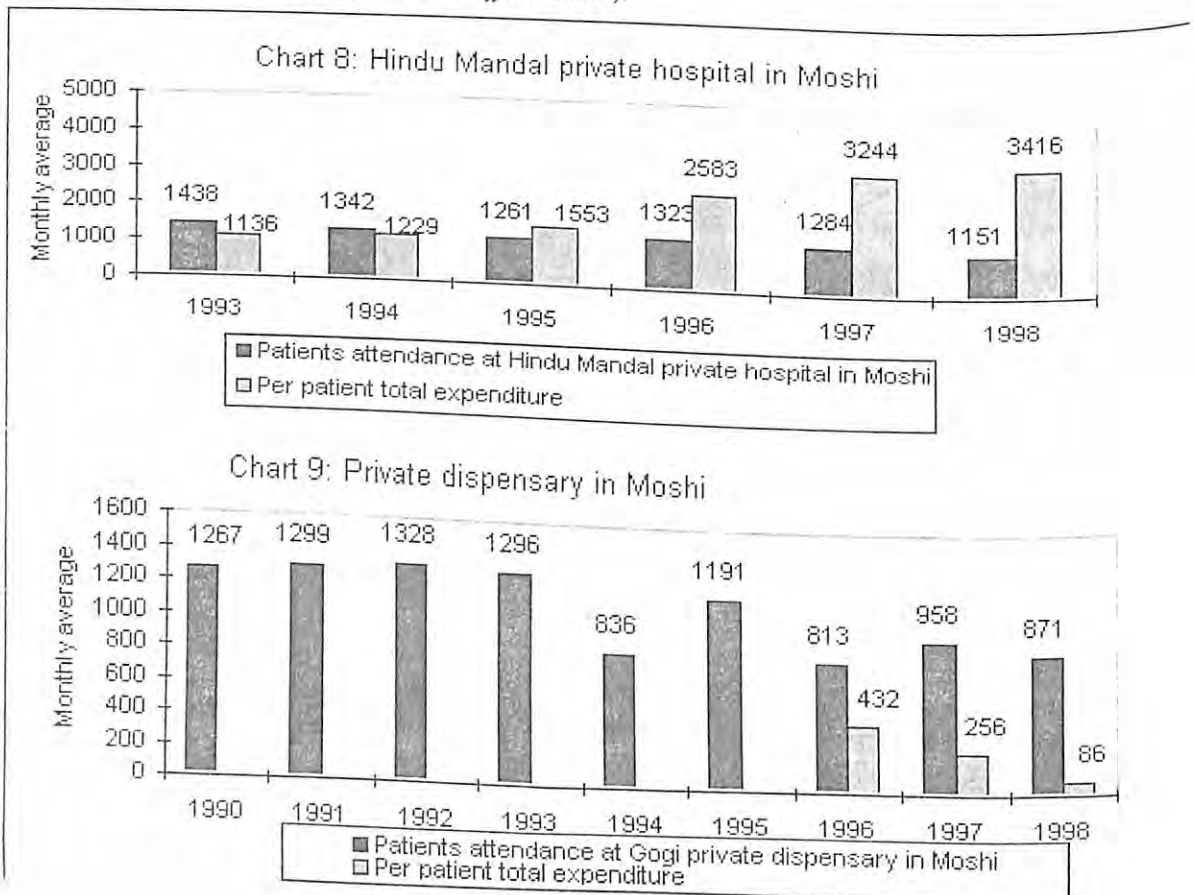
Table 1: Expenditure on medicines, equipment, staff bonuses, and renovations as percentage of total spending from user-fee revenue.

Facility Name	Medicines and equipment***			Building and renovations (Staff motivation)		
	1996	1997	1998	1996	1997	1998
Bagamoyo hospital	27 (38)	19 (69)	0 (100)	35 (0)	12 (0)	0 (0)
Usangi hospital	18 (82)	16 (33)	0 (0)	0 (0)	50.6 (0)	100 (0)
Moshi mission hospitals	96 (3.8)	91 (1.7)	39 (2.0)	0 (0)	7.2 (0)	59 (0)

*** The text and figures in brackets correspond to each other.

Table 1 shows the decomposition of hospital spending into expenditures on patient-directly felt services. Mission hospitals spent their user fee revenue mainly on medicine compared to public facilities; as a result, and as we shall see later, household-assessment of drugs availability in mission facilities scored "very good" (Table 3). Drugs availability is one of the core components in quality assessment in healthcare. Facilities that ensure drug availability are also inclined to attract more patients, *ceteris paribus*.

Panel 3: Private health facilities expenditure of revenue from fees and patients attendance (expenditure on new building, renovations, medicines, equipment, and staff motivation).



Panel 3 gives an overview of performance in non-mission private health-care facilities. Gogi dispensary (in Moshi) doubled its fees in 1997/1998 from the last review made in 1990. The effect is easily seen in Chart 8, though attendance was not much affected. Hindu Mandal had its last review of consultation fee in 1988, which was increased by fifty per cent and laboratory charges by two hundred per cent. Other services also had their prices increased.

The increase in prices in Hindu Mandal hospital was followed by an increase in per-patient spending which might explain why attendance did not decrease significantly. This is so because further analysis in Table 2 shows that private hospitals spend mainly on medicine. And since patients' tastes are sensitive to medicine, consumer's satisfaction increases accordingly.

Table 2: Revenue in private facilities: expenditure on medicines and staff motivation as % of total spending on consumer-directly enjoyed services*

Facility Name	Medicines			Staff motivation		
	1996	1997	1998	1996	1997	1998
Hindu Mandal	100	97	99	0	2	0
Gogi disp.	39	95	100	2	2	0

* Consumer-directly enjoyed services refer to expenditure on items affecting the patient directly i.e. medication, buildings, equipment, and staff motivation.

temporal analyses of household satisfaction with quality of health-care from various providers. The facility and the household data in our surveys match each other, implying that we interviewed households and the facilities in which they sought care and those in which they did not, though they are within the reach of the community.

Table 3 shows the results of households' assessment of quality of care in health facilities and the corresponding effect on usage. The table shows inter-temporal change in quality between 1995 (when user fees were introduced) and 1998 (after the first review of the fees) for three public district hospitals for which matching data are available. The results show that, over the period, quality of health care deteriorated in all three facilities. Queuing time seems to be the source of the greatest decline (-32.09 per cent) in patients' satisfaction. This is not a surprise because availability of staff declined by 18 per cent. The results of household assessment of health facilities show further that between 1995 and 1998, availability of medicines declined by 19 per cent. These results are rather 'shocking' because the general understanding was that fees would increase quality of health service provision in Tanzania. Shortages of drugs are usually either caused by an increase in patients' attendance (usage) or inadequate replenishment of medicine stocks. User fees therefore would alleviate shortages rather than increase them, *ceteris paribus*. But the results show the opposite, indicating potential fungibility of government grants to user fees.

Hospital Expenditures and Household Assessment of Quality of Healthcare Services

Looking at hospital spending on quality improvement and attendance alone may not be adequate to assess performance impact of user fees on health services; there is also a need to examine households' satisfaction with hospital services. Since the data from Tanzania were collected at two different points of time, it is possible to perform both cross-sectional and inter-

Table 3: Inter-temporal changes in the quality of care in health facilities: household assessment.

Item of quality		Facility Name			All facilities
	Year	Bagamoyo	Usangi	Kisarawe	
Medicine available	1995	3.78	3.02	4.44	3.75
	1998	2.96	2.97	3.14	3.02
	% Change	-21.69	-1.66	-29.28	-19.31
Queuing time	1995	3.83	3.20	4.19	3.74
	1998	2.24	2.41	2.97	2.54
	% Change	-41.51	-24.69	-29.12	-32.09
Staff	1995	3.89	3.85	4.59	4.11
	1998	3.04	3.35	3.51	3.30
	% Change	-21.85	-12.99	-23.53	-19.71
Cleanliness	1995	3.92	3.00	1.84	2.92
	1998	2.91	3.35	3.62	3.29
	% Change	-25.77	11.67	96.74	12.79
Total No. of items	% change total by facility	-27.69	-7.57	-12.09	-16.26

Notes: Scores are as follows: 1=very poor, 2 = poor, 2 = poor, 3 = average, 4 = good, 5 = very good.

Source: 1995 patients' survey in Kilimanjaro, Coast and Dodoma regions in Tanzania to assess the impact of user fees on health facilities. 1998 household survey in Kilimanjaro, Tanga, and Coast regions.

Table 4: Medicine, general quality, and the per-patient hospital expenditure comparisons for 1997/98

Facility Name	Medicine (scores out of 5)	General quality* (average of all quality items)	Per patient Tshs. expenditure (panel 2)	Effect on attendance
Bagamoyo	2.96	2.51	61	-
Usangi	2.97	3.06	63	+
Kisarawe	3.14	3.09	N.A	+
Moshi (Rural) Mission	4.30	3.65	920	+

Notes: Scores are arranged as follows: 1 = very poor, 2 = poor 3 = Average, 4 = good, 5 = very good

Data source: Appendix 3.

* The quality index is a summary of scores on medicine availability, queuing time, staff and cleanliness.
N.A = Data are not available

Table 5. Summary of panels 1-4*

Facility Name	Fee introduction year	Consultation rates and (medicine) Tsis	1 st impact on attendance in facilities	1 st Household quality assessment 1995 (four items)**	Per patient hospital expenditure Tsis 96/97	1 st review of fees-consultation and (medication)	Hospital per patient expenditure 1998	Per patient expenditure as % of consultation fee 98	2 nd household assessment of quality '98 (four items only)*	2 nd household assessment of quality '98 (all items considered)* **	Impact on attendance '97/98
Bogamoyo government district hospital	93/94	100 (50 per each dose)	decrease	3.9 (out of 5 points)	63	300 (50% of cost of medicine)	61	20.3	2.8	2.51	decrease (-)
Usangi government district hospital	93/94	100 (50 per each dose)	decrease	3.3	112	300 (50% of cost of medicine)	14	4.6	3.1	3.06	increase (+)
Kisumu government district hospital	93/94	100 (50 per each dose)	decrease	3.4	NA	300 (50% of cost of medicine)	NA	NA	3.3	3.09	increase (+)
Moshi rural district mission hospitals	NA	NA	decrease	NA	NA	NA	699	164	4.19	3.63	increase (+)
Moshi urban -Hindu Mandali private hospital	NA	NA	NA	NA	NA	NA	3416	1139	3.9	3.10	decrease (-)

Notes

- Quality scores are based on 5 points as maximum score as shown in Panel 4.
- NA stands for 'not available' in the survey
- Values in brackets for column 3 and 6 correspond to the explanation given in brackets in the first row.
- * Medicine availability, queuing time, staff and cleanliness considered only.
- ** Medicine availability, queuing time, staff, cleanliness and inpatient services considered together.

Table 4 and the summary in Table 5 give a clearer picture regarding user fees and performance in selected health facilities. In Table 4, households' medicine and general quality assessment are closely linked to hospital per-patient spending. Facilities with relatively high per-patient spending scored more points on household assessment of quality. Usage in health facilities increased with per-patient hospital spending and with higher scores from the quality assessment. Table 5 shows a more detailed analysis. All government and mission health facilities had declining patients' attendance immediately after the introduction of user fees, though the quality of their services was generally ranked above average in all the facilities in 1995, according to the households' views. In 1998, quality of health care in these facilities was also generally viewed as being slightly above average, though lower than the 1995 level, but Bagamoyo and mission hospitals showed a different picture; Bagamoyo was ranked below average while mission hospitals in Moshi were ranked 'very good.' Usage followed the same pattern except Usangi, probably because it did not suffer a big reduction in medicine availability between 1995 and 1998 (Table 3). Per-patient spending between 1996/97 and 1998 for Bagamoyo and Usangi declined, which explains the downward shift in their quality ranking. Same data for Hindu Mandal is not available in the survey. The results suggest that perception about quality has a more pronounced effect on attendance compared to user fees alone.

Delivery Efficiency: Impact on Facility Usage

Based on the earlier results, we compute statistical ratios that we think are pertinent to issues of user fees, quality and attendance. Table 6 is a summary of intertemporal statistical ratios for the period 1995/96 - 1997/98. Delivery elasticity is estimated as household satisfaction per each unit of expenditure by health facilities. Unfortunately, data for most facilities in the sample is missing, but however, Bagamoyo and Usangi hospitals have their information available in Table 6.

Table 6: Summary of inter-temporal statistical ratios: 1995/96 - 1997/98

(1) Facility Name	(6) The ratio of user fee to traveling costs**	(7) Estimated delivery efficiency***
Bagamoyo	1.67	0.04
Usangi	1.17	0.22
Kisarawe	0.77	NA

* The values are computed from household assessment of quality.
NA means 'not available'.

** Traveling costs as an estimate of the initial costs of access. We consider consultation fee only (300 Tshs).

*** Household satisfaction per unit of hospital expenditure.

There are three substantive columns in the table, quality elasticity with respect to attendance, traveling costs and the estimated delivery efficiency. Transport cost has been introduced here to gauge expenses that might have disadvantaged facilities located in remote areas. The ratios show high elasticity of quality for Usangi than the other two facilities for which data are available. The transport cost indicator for Usangi is also lower than that of Bagamoyo. With regards to efficiency then, Usangi appears more efficient in quality production than Bagamoyo. Its unit cost per ex-ante realized satisfaction by users is higher than that of Bagamoyo. As a result both quality elasticity and attendance for Usangi are obviously higher than those of Bagamoyo.

CONCLUSIONS

This paper set out to study whether user-fees have improved quality and usage in public health facilities. The results show three major observations.

- *Quality matters more than user-fee per se.* Selective expenditure from the user-fee revenue has potentials to improve both quality and attendance. User fees do not matter as

such, but the output from the revenue is crucial in the decision to choose a provider of health care. The policy implication would be that the user fee revenue be spent on those items that are directly felt by patients.

- ♦ *Fungibility of grants to user fees.* The results indicate that fungibility of government grants to fees can reduce attendance in public hospitals. This is because user-fee revenue becomes a substitute to the grants, therefore leading to a real increase in the price of health services.
- ♦ *Delivery efficiency.* We note a general indication from the results that high unit costs in the provision of health services reduces quality attainment. In turn, patient attendance is reduced because people get less than what they pay. In this respect, the government could introduce compensating mechanisms for the facilities with relatively high per unit cost of provision.

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