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Charging User Fees for Social Services The Case of Education in Malawi

Mateen Thobani

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ABSTRACT

The paper analyzes in detail one of the ways to reduce the problem of recurrent expenditure in social sector services - that of raising user charges. It argues why a system of marginal cost pricing is not suitable in social sector services. Using a partial equilibrium static framework, the paper derives the efficient price for such services but points out that government resources are often not enough to meet the total subsidy required and the service falls short of the optimum. Under such circumstances, the paper uses the framework to derive a "second-best" optimal price and formulates a simple efficiency rule: For a given amount of subsidy, whenever there is an excess demand for a service, the price of the service should be raised and the additional revenues used to expand the service. Since it is easy to observe excess demand and the other criteria required for an application of the rule are usually satisfied, the rule is very operational.

When low user charges and limits on the government budget cause an excess demand for a service, one of two things must happen: some people will be denied the service, or the quality of the service will deteriorate. This paper argues that both these phenomena typically hurt the poor more than the rich. Therefore, raising user charges in line with the efficiency rule suggested will result in relatively more of the poor benefitting as compared to the rich. Further, it may often be possible to charge discriminatory prices in such a way that the poor do not pay the higher prices.

The second part of the paper applies the framework developed here to the education sector in Malawi. Based on an analysis of readily available data, specific policy conclusions are drawn regarding user charges. The recommendations are practicable and efficient, while simultaneously allowing a greater proportion of the poor to have access to education.

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INTRODUCTION

Many developing countries are having difficulty meeting the recurrent expenditures necessary to provide subsidized social services such as education, health and water. As a result services deteriorate or are restricted so that many people who are willing to pay the subsidized price are denied the service. Using an economic framework, this paper shows why social sector services typically need to be subsidized both from an efficiency as well as an equity point of view. However, it is not clear whether the typically low prices charged for such services are really optimal, particularly in view of budgetary limitations. The paper next analyzes conditions under which raising user charges would increase efficiency while reducing the financing problem, and suggests that the equity objective need not be sacrificed. The framework is then applied to the education sector in Malawi and policy recommendations are made regarding the structure of user charges.

In Part I a static partial equilibrium economic framework is developed for analyzing the optimal level of user charges in social sectors. The framework is used to show why marginal cost pricing is not suitable for social sector services and the efficient solution is pointed out. Given the practical difficulties of calculating the efficient price and the budgetary difficulties in financing the subsidy level associated with the optimal price, a second-best solution to the pricing problem is discussed.

Next the equity aspects of raising user charges are discussed. With a fixed budget constraint, too low a price causes the

good to be rationed or the quality of service to deteriorate. Both these phenomena tend to hurt the poor more than the rich. Raising user charges and using the proceeds to expand the service and make it more accessible to all may well outweigh the direct negative impact of making the service more expensive to the few poor who already have the service. Further, it may often be possible to charge discriminatory prices (scholarships, increasing block tariffs for water) in such a way that the very poor do not pay higher prices.

Part II briefly describes the education sector in Malawi paying particular attention to financing issues--how much is spent, how the money is allocated, and how much is recovered via user charges. Next, the structure of demand is outlined in broad terms and the framework developed in Part I is applied to primary, secondary and higher education. Based on an analysis of readily available data, specific policy conclusions are drawn regarding user charges which are practicable and efficient while simultaneously allowing a greater proportion of the poor to have access to education.

Part I

THE FRAMEWORK

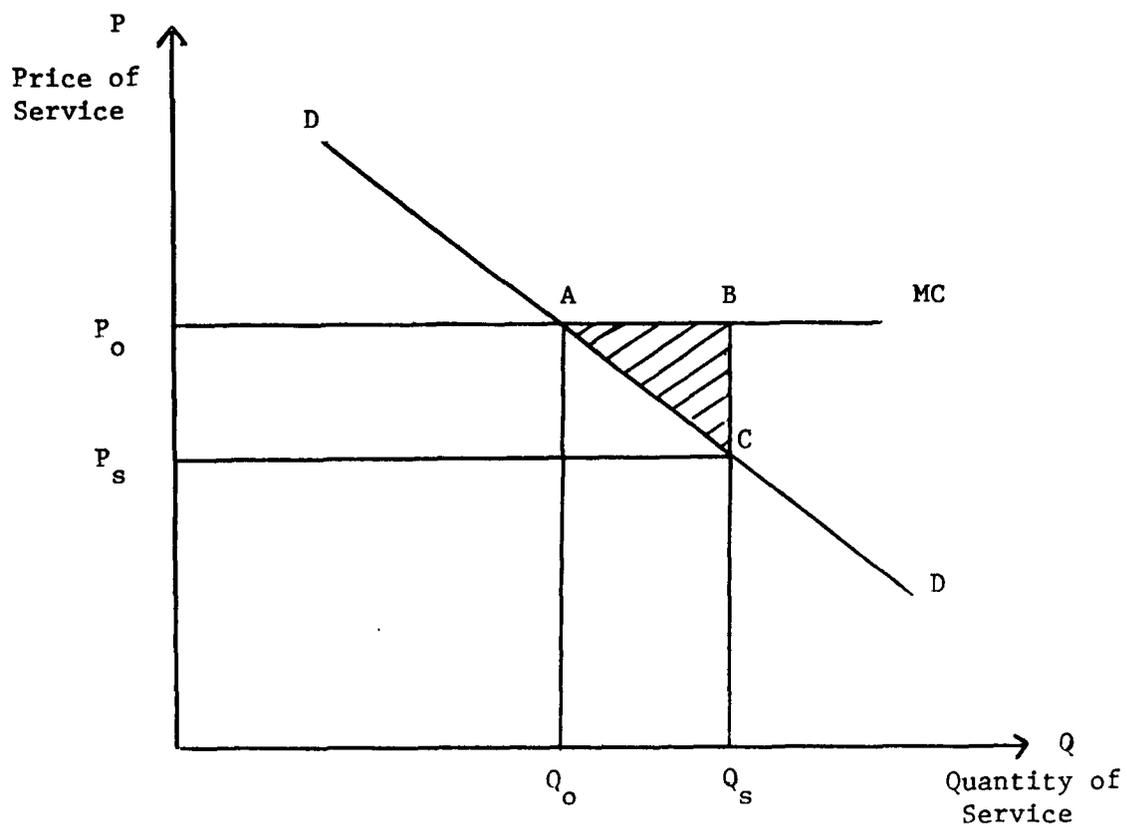
A. Efficiency and the Level of User Charges

When deciding on the optimal level of user charges the first question that needs to be asked is why the private market solution is not optimal. Why should one need to subsidize education? Why is there a gap between the social benefit resulting from the service and the private benefit reflected in the willingness to pay by the beneficiaries? Having satisfactorily answered these related questions, one can consider what the optimal level of user charge must be for the service.

Assuming perfect markets and no externalities, efficiency calls for equating the user charge to the marginal cost of providing the service. This is demonstrated in figure (1). DD is the social demand curve which, under perfect market conditions, is also the private demand curve. The area under the demand curve reflects society's willingness to pay for the service. The area under the marginal cost curve MC reflects society's cost of providing the service. As long as the benefit to society from an additional unit of the service exceeds society's cost of the additional unit, service should be expanded. In Figure (1) the optimal level is shown to be Q_0 which is achieved by setting a user charge of P_0 . If the government decides to set a lower price P_s for the service, a quantity Q_s will be demanded. The government subsidy is given by rectangle P_0BCP_s while the gain to the consumers by the lower charge is the trapezoid P_0ACP_s . The net loss to

Figure 1

There is a Loss to Society from
not Setting Price Equal to Marginal Cost



society resulting from the subsidy is given by the difference between the two and is represented by the shaded triangle ABC. ^{1/}

A policy of setting the user charge equal to marginal cost will not be optimal if the perfect market and no externalities assumptions do not hold. This is because the private demand curve, which reflects individual willingness to pay, will be different from the social demand curve, which reflects society's valuation of the service. It will be demonstrated later how to set the optimal user charge in that case. First, five reasons for the divergence between private and social benefits are discussed below:

(1) Imperfect Capital Markets: If the individual is sure of receiving a private rate of return on the service of say, 20%, and if the government's or the commercial bank's cost of borrowing is less than 20%, it would be beneficial from society's point of view for the commercial bank or government to lend to the individual to allow him to buy the service. However, the individual may not be able to borrow the funds required to buy the service at full cost at an interest rate below 20%. This may be because it is too costly for the commercial bank or government to obtain information about the individual's prospective rate of return and because of the difficulty in enforcing repayment. Therefore, the alternative of reducing the price charged for the service to a level that induces the individual to utilize the service may be the next best solution.

(2) Uncertainty: While the expected net benefit from a service may be positive thus indicating that a relatively risk neutral

^{1/} Throughout this section equity considerations are ignored. They are considered separately in the next section.

government should undertake the service, it may not be in the interests of the risk averse individual to participate in the service at full marginal cost. For example, even if the expected value of the individual's education (weighted by the respective probabilities of subsequent employment or unemployment) is positive, the risk averse individual may prefer not to avail himself of the service in order to cover the unlikely event that he cannot obtain employment. In this case, the second-best solution may be for the government to buy equity in the individual by financing his education and then collecting a portion of his salary. If this is not practicable, an alternate solution would be to lower the price charged for the service.

(3) Imperfect Labor Markets: The government, in an effort to encourage equality of income, may follow a wage policy under which the worker is paid less than his marginal product. In such a situation, even if education may increase his marginal product by enough to make his education socially beneficial at full marginal cost, the individual's low private return may induce him not to invest. Tanzania is a good example of a country which has followed such a pay policy. There is still excess demand for secondary education in Tanzania only because the effect of the pay policy is more than offset by free education and by the high returns to education due to the extreme scarcity of secondary school graduates.

(4) Lack of Information: In certain situations an individual may not be aware of the potential benefits of a service. Since his willingness to pay depends on his perception of benefits and not society's perception, he would not be willing to pay full marginal cost for the service. For example, a charge on rural drinking water may

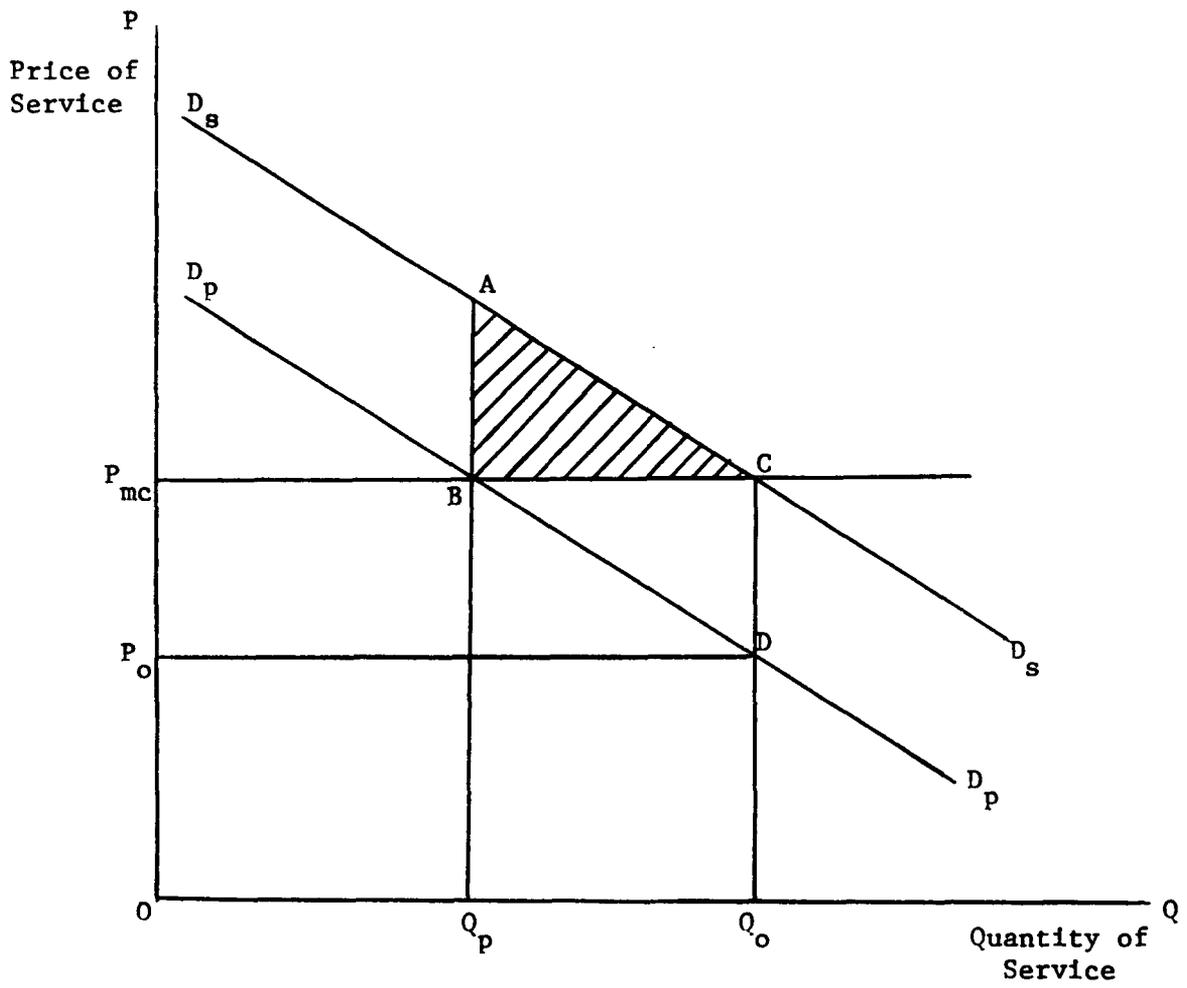
cause residents to revert to using polluted water because they do not perceive the health benefits of the clean water. Of course, the government could try to provide information to the residents, but it might well be more cost-effective to subsidize the service.

(5) Externalities: A person's willingness to pay for a service depends on his personal gain, not that of society. In most social sector projects there are gains to society in addition to those accruing to the individual. If the government were to charge the full user cost, the individual would choose not to participate in the service. For example, an individual may decide not to immunize himself against a contagious disease at full marginal cost because his expected loss from contracting the disease is less than the fee. However, the loss to society from the individual's contraction of the disease is greater than the loss to the individual because it increases the risk of others contracting the contagious disease. Therefore, it may be in society's interest to subsidize the service and induce the individual to immunize himself.

What is the optimal price of the service when private and social demand curves do not coincide? Figure 2 illustrates the case where the private demand curve $D_p D_p$ lies below the social demand curve $D_s D_s$. As before Q_0 , where social marginal benefit equals marginal cost, is the optimal level of service. However, if the government charges the marginal cost P_{mc} individuals will demand only a quantity Q_p . In order to induce consumption of a level of service equal to Q_0 , the government must charge P_0 and pay a subsidy $P_{mc} C D P_0$. The net gain to society from the lower price P_0 as compared to P_{mc} is the difference between the

Figure 2

Setting Price Equal to Marginal Cost is not
Optimal in the Presence of Externalities



increased social benefit of Q_pACQ_0 and the increased cost of Q_pBCQ_0 . Therefore the net gain to society of optimal pricing versus marginal cost pricing is represented by the shaded triangle ABC. If the government decides to impose a charge lower than P_0 , there is a net loss to society just as demonstrated in figure 1.

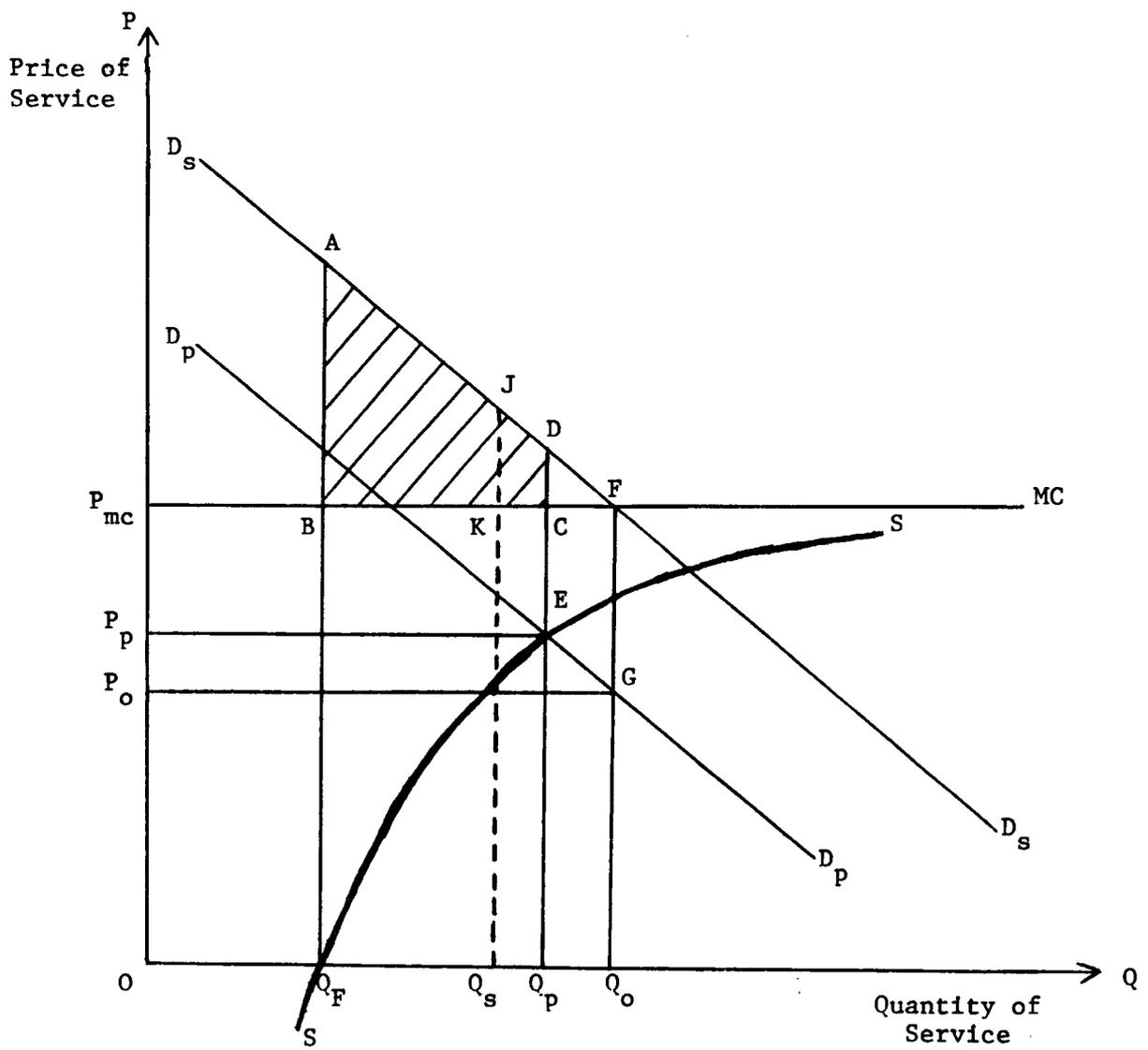
There are two problems with the application of optimal pricing -- the first is the difficulty of empirically locating the optimal price and quantity combination. The second, more serious problem, is that the government typically does not have the resources to provide the optimal level of service at the optimal price. The subsidy required to do so would be too large. In such a situation, setting a price P_0 would lead to an excess demand situation and, as will be shown later, an alternate market clearing solution is more efficient.

For ease of exposition, we illustrate a situation where the initial price is zero and show the gain to society of moving to the alternate market clearing price. Figure 3 shows the case of a government which is providing the service free but only has resources $P_{mc}BQ_F0$ to use for the subsidy leading to an excess demand for the service. SS is the locus of the points with the same level of subsidy which I shall call the iso-subsidy curve. In the case of constant marginal cost, it is a rectangular hyperbola with one of its axes being the marginal cost line such that rectangle $P_{mc}BQ_F0$ equals rectangle $P_{mc}CEP_p$. With the same amount of money the government can provide a Q_F level of service for free or a Q_p level of service at a market clearing charge of P_p . Which choice is in the interest of the government?

The net benefit to society when the service is provided free is given by the area above $P_{mc}B$ and below D_sD_s . At a charge of P_p the

Figure 3

The Optimal Price Under Externalities and a
Subsidy Constraint is Higher than the Unconstrained Optimal Price



net benefit is given by the area above $P_{mc}C$ and below $D_S D_S$. The net increase in benefit by raising the user charge to P_p is given by the shaded trapezoid ABCD. Curiously enough, the optimal charge P_0 is below P_p . However the optimal charge requires a subsidy $P_{mc}FGP_0$ [$>P_{mc}CEP_p$] which the government cannot afford. It is instructive to verify that in such a situation a charge of P_p is better than a charge of P_0 : At a charge of P_0 only a quantity O_S will be supplied under the fixed subsidy assumption. The net loss to society in moving from P_p to P_0 is given by JKCD.

The rule of thumb that emerges from the analysis is that for a given amount of subsidy, whenever there is an excess demand for a service, the price of the service should be raised and the additional revenues used to expand the service as long as the socially optimum quantity level is not exceeded. The result is quite powerful and operationally very useful since it is usually easy to observe the subsidy level and excess demand. At this stage it is worth making some qualifications and clarifications to the result:

(i) The subsidy level is assumed fixed and is therefore independent of whatever fees are raised. Thus, when applying the rule, care must be taken to ensure that fees raised via increased user charges do not induce the government to reduce the subsidy level.

(ii) The result is based on the assumption that the fixed subsidy level results in a quantity supplied that is below the unconstrained optimum. This is typically the case for most social sector services in developing countries. However, if the current level of service is greater than the optimum level, expanding the service will clearly decrease social welfare.

(iii) This is an efficiency criterion only. Social and political objectives must also be considered before one can make such a recommendation.

(iv) It might appear, at first, that the impact of the price increase on the supply of substitutes in the private sector has been ignored--that the higher price will call forth a private sector response which will siphon off demand from the public service and could lead to an excess supply situation. This is not true; the horizontal axis in our diagram measures the net change in quantity. All that this implies for our analysis is that when the elasticity of demand for the public service is not well known, the price must be raised gradually so as to avoid the excess supply situation.

(v) The result does not require linear marginal cost or demand curves nor a horizontal marginal cost curve. They have been drawn in this way for clarity of exposition only.

(vi) It was assumed that the social demand curve lay above the private demand curve. If this were not true, the case for raising user charges is true a fortiori. In fact, the service should be taxed rather than subsidized. Raising user charges is a step in the right direction. However, special care must now be taken to ensure that the socially optimum quantity level is not exceeded.

To summarize, there is a good case for not charging full marginal costs to the user. A subsidy is called for in most social sector projects. However, for a given amount of subsidy there is a trade-off between the per unit subsidy and the level of service or coverage. Since the level of service constrained by the fixed subsidy level will typically fall below the optimal level, price should be

raised whenever there is an excess demand in order to obtain a higher level of service.

B. Equity and the Level of User Charges

The issues addressed thus far have all related to economic efficiency and have ignored equity. If efficiency calls for raising user charges by enough to ensure that only the rich can afford the still subsidized service, it implies a transfer of government resources to the rich. Clearly at some levels of user charges at least, there is a trade-off between equity and efficiency. To make the concept of equity a little more concrete we shall define a new situation to be more equitable than the initial situation if the increase (decrease) in the number of the poor utilizing the subsidized service is more (less) than the increase (decrease) in the number of the rich.

The equity argument against raising user charges is simple and direct. The higher user charge makes the poorer person more likely to drop out of the service or not avail of the service. In the case of education, this makes it more likely that the person remains poor because there is a high correlation between income and education. The argument is correct and compelling, but incomplete given the government's inability to finance the level of demand associated with the low user charge.

This section argues that a situation of low user charges and a low level of service may be worse from an equity point of view than one with higher user charges and an expanded supply. From an efficiency perspective, we have seen how a higher user charge coupled with an expansion of service leads to a smaller loss in welfare under certain

conditions. The equity argument cannot be presented quite so elegantly. My purpose is to point out that a low user charge often hurts the very people it is meant to help and that by raising user charges the expanded (but more expensive) level of service is often more accessible to the poor. The rule, however, is by no means universal. The impact on utilization of the service by the poor of an increase in user charges should be examined case by case keeping the arguments presented here in mind.

When low user charges and limits on the government budget cause an excess demand for a service, one of two things must happen: some people will be denied the service or the quality of the service will deteriorate. Unfortunately, both these phenomena typically tend to hurt the poor more than the rich. For example, a low charge on water may make the government unable to provide water to all households. For various reasons, it is the richer households who manage to obtain the subsidized water while the poorer residents pay very high prices to buy small quantities of water from private sources. A higher charge for water would enable the government to provide water to more households and would probably result in relatively more of the poor benefitting from the expansion of the service.

In the education sector, the rationing of excess demand may take the form of denying the service to certain areas (usually the poorest) or of using exam scores as a means of screening. There is much evidence on a positive relationship between exam scores and household income or parents' education. Some of the earlier studies which found this phenomenon to occur include Bowles (1972) and Alexander and Simmons (1975). Heyneman (1980) and Heyneman and Loxley (1981) find the

relationship to be weaker in developing countries. In a more recent comparative study of secondary school systems in Tanzania and Kenya, Armitage and Sabot (1982) find a strong positive relationship between exam scores and parents' education. They conclude that:

"A small school system will tend to be monopolized by children from relatively privileged backgrounds. Rapid expansion of that system will benefit disproportionately children from less privileged backgrounds, without displacing the more privileged children. A move to a more meritocratic selection criteria is not an effective substitute for expansion with respect to equalizing the distribution of schooling. The tendency for children from relatively privileged backgrounds to monopolize the system will persist."

Thus it is generally the richer people who utilize the subsidized service. The low user charge gives a relatively bigger subsidy to the rich. It does not necessarily make education accessible on the basis of ability or potential.

An example of how a deterioration of quality resulting from low user charges and insufficient funds hurts the poor more than the rich is provided by the primary education sector in Malawi. An open door admissions policy accompanied by low user charges has resulted in a steady deterioration of quality as reflected by high student-teacher ratios and inadequate supplies. ^{2/} A study recently conducted in Brazil reveals that public inputs (quality and availability) are a substitute for parents' education and income in so far as schooling attainment is concerned. ^{3/} The students who are more likely to gain from an increase in quality or availability are the ones whose parents have lower levels

^{2/} Actually, most countries in the East Africa region do not charge any fees at all in primary school.

^{3/} See Birdsall (1982).

of education and income. Hence lowering quality as an alternative to raising user charges hurts the poor more than the relatively rich. Of course, if quality is raised too much, then either the price charged will be so high that only the rich can afford the service, or the coverage of the service will be so small that only very few (generally rich) people will have access to it. There is an optimal quality level. The argument here suggests that in certain instances when a lower than optimal quality level is reached because of budgetary problems, an increase in quality may not only be good from an efficiency point of view, but may well benefit the poor more than the relatively rich. Therefore, on account of both rationing and deterioration of the service, keeping user charges low in the face of excess demand may have the opposite of the intended result -- "The road to hell is paved with good intentions."

The expansion of the schooling system that would result from increasing user charges is not only likely to make the service more accessible to the poor, as suggested above, but may also have a long-term beneficial effect on income distribution. The phenomenon is known as wage compression. The increased supply of (say) secondary school graduates decreases the relative scarcity of the factor. This reduces the premium (wage) paid to the factor and hence compresses the wage structure leading to greater equality. There is evidence for the improvement in income distribution caused by wage compression in industrial countries. ^{4/} Recently completed work at the World Bank by Knight and Sabot (1982) also finds this phenomenon occurring in Kenya

^{4/} See Phelps Brown (1977).

and Tanzania. Thus the long-term effect of raising user charges in accordance with the efficiency criterion reduces the short term effect of making education more expensive.

Thus far, the analysis has assumed that all recipients of the service pay the same flat price for the service. However, it is sometimes possible to charge discriminatory prices. When discriminatory pricing is possible, one can achieve the efficiency objective of higher user charges without raising the price to the poor. A good example of this in the the water supply sector is an increasing block tariff structure. Since water consumption is highly correlated with income, the rich would pay a higher unit price for water than the poor. In the education sector, price discrimination can be achieved via scholarship schemes that are based on income. The expansion of the service in this case makes it unambiguously more accessible to the poor.

Part II

THE EDUCATION SECTOR IN MALAWI

A. The Structure of Finance

Before it is possible to apply the framework to make recommendations on altering education user charges in Malawi, it is important to understand the Government's current methods of finance. This section presents Government expenditures on education over time, breaks them down by subsector, and examines unit costs. It also outlines the current user charge structure for the three major categories of education expenditure -- primary, secondary and higher education -- and discusses what proportion of total costs are collected.

All data in this section refer only to schools which are either run by the Government or Government assisted. They comprise over 90% of all enrollment and will be the only schools considered in the paper.

Table 1 shows the expenditures on the Revenue Account (Recurrent Expenditure) on education and the national budget for the years 1972/73 to 1979/80. As a proportion of the national budget, the expenditures on education declined steadily from 16.3% in 1972/73 to 11.3% in 1979/80. In real terms, the expenditure in education rose by 20% over this period. Since enrollment increased by more than 60% over this period, the real expenditure per student fell. Whereas this is to be expected at the university level because of increasing returns to scale, the returns at the primary and secondary school levels are

Table 1

National Expenditure on the Revenue Account
1972/73 - 1979/80 in millions of kwacha*

Year	Education	Total	As % of total
72/73	9.3	57.0	16.3
73/74	10.0	61.7	16.2
74/75	11.3	73.8	15.3
75/76	11.9	84.4	14.2
76/77	12.8	93.6	13.7
77/78	14.2	108.3	13.0
78/79	17.8	140.4	12.7
79/80	20.4	180.2	11.3

Source: Malawi Educational Statistics, Ministry of Education,
November 1980.

* K1 = US\$ 1.1 in November 1981.

typically constant. Thus it is likely that the quality of primary and secondary education has deteriorated. ^{5/}

Table 2 gives a breakdown of the expenditures on education by major category. Primary education, with 97.4% of the enrollment, received 40.3% of the education expenditure while the university, with 0.2% of the enrolment received 23.2% of the educational budget. Administration and other expenditure is the only category whose share has been increasing since 1972/73. From 7.9% in 1972/73, the share of this category increased to 13.9% in 1979/80. The increase has occurred mainly at the expense of a reduction in primary and secondary education shares. At 253 times the average expenditure on a primary school student, the average expenditure per student at university was considerably higher than in other countries in the East African region.

Part of the expenditure on primary and secondary school goes back to the Ministry of Finance in the form of school fees. The annual school fee structure for primary school is outlined below:

	<u>Rural</u>	<u>Urban</u>
Grades 1-5	K2	K3.5
Grades 6-8	K4	K6.5

The fee structure has remained unchanged since 1975. About 20% of total primary school recurrent expenditure is recovered via these fees. The Government's objective in charging tuition fees is to recover all expenditures other than teacher salaries (i.e., books,

^{5/} Actually, secondary school enrollments increased by only 19% over the six years which implies that the brunt of the decrease in real expenditure per student has fallen on primary school students.

Table 2

Expenditure on Education by Major Categories 1979/80

	Expenditure (m Kwacha)	% of total	Number enrolled	Exp. per student (Kwacha)
Admin. and Other	2.83	13.9	-	-
Primary	8.22	40.3	711255	12
Secondary	3.00	14.7	14317	209
Teacher Training	0.97	4.8	1855	525
Technical	0.31	1.5	694	434
MCC	0.34	1.7	-	-
University	4.74	23.2	1620	2925
Total	20.40	100.0	729741	28

Source: R.M. Jones (1981).

supplies and maintenance). This worked as envisaged until 1978 when an IDA credit ^{6/} to purchase text books made it unnecessary to take recourse to higher tuition fees to meet the increased costs of books and supplies. Without the IDA credit the Government would probably have been compelled to raise fees in 1978. In March 1983 the IDA credit expires and, without an increase in school fees, Treasury would have to pay an additional K3.8 million in 1983/84 Kwacha just for text books and writing materials -- money that would be forthcoming only with great difficulty. The shortfall is 32% of the allocation to primary education or almost the same amount as the total secondary school budget.

There are three types of government supported secondary schools: grant-aided (missionary) boarding, government boarding and government day. Actually all three offer boarding. Unlike students at the highly competitive government boarding and grant-aiding boarding schools, the government day boarders pay the full marginal costs of boarding. In 1980/81 the average total cost per student in the schools ranged from K227 in aided boarding to K373 in government day. The costs of books and supplies lay between K26 and K30 per student whereas boarding, travel and maintenance ranged from K79 in aided boarding to K172 in government schools. Students in all three schools pay a flat K20 per year tuition fee which is applied towards books and supplies. In addition, they pay K30 per year for boarding in aided and government boarding schools whereas government day scholars pay between K75 and K100 per year for boarding.

^{6/} Credits provided by the International Development Association (IDA), an affiliate of the World Bank, are free of interest and have to be repaid over a period of 50 years with a 10-year grace period.

At the university, not only are there no tuition fees but the students are not charged for room and board and are given a further K12 per month pocket money. Costs of the university education are high, however. The average cost per student in 1980/81 was K3411. Of the total of K5.8 million spent on university that year, about 17% went towards student living and allowances and only 37% went towards teaching (teachers' salaries) and the library. Expenditures on teaching and the library are not expected to expand proportional to the increase in students; expenditures on student living and allowances will, however, increase proportionally. Therefore, unless the current policy changes, expenditures on student living and allowances will consume a larger share of the university budget.

B. Application of the Framework and Policy Recommendations

To apply the framework developed in Part I to the education sector in Malawi, it is useful to split up the education sector into its three major components - primary, secondary and higher education - and analyze each in turn. In each case it will be noted how the current policies measure up to the Government's financing objectives and what are the efficiency and equity implications of the user charge structure. Based on results derived from our framework, the appropriate direction of a change in user charges will be established and an attempt will be made to quantify the recommended change. Throughout the analysis, the emphasis will be on practicable recommendations.

(i) Primary Education: Malawi has an open door policy with respect to admittance in primary school. Anyone who is willing to pay the K2 fee can enter primary school. Because the supply curve appears

infinitely elastic, it seems that there can be no excess demand for primary education. How relevant then is the major result of our framework which relies on the existence of excess demand to be able to make policy recommendations? Actually, as will be seen shortly, there really is an excess demand which does make the earlier analysis very relevant.

The point to note is that with a given amount of resources, adding more students to a class must lead to a deterioration in quality. It is a government objective to reduce the average class size to 50 from its current level of 66. Schooling with 66 students to a class is a different service from schooling with 50 students to a class. The Government believes that 50 is the optimal class size for its people and so a class size of 66 represents a frustrated demand for higher quality service. Alternatively we can say that at a class size of 50 there was an excess demand for the service, which, because of the open door policy, had to be absorbed by a deterioration of quality as represented by a class size of 66. This establishes the existence of the excess demand criterion. Given that the level of consumption of the service represented by 66 students to a class is below the optimal level of 50, and since any realistic projected increase in spending will still yield class sizes over 50 (ie. the excess demand persists), the price of the service should be raised on efficiency grounds. The additional funds should then be used to improve quality (ie. lower student-teacher ratios, provide more books and supplies).

What about the equity criterion? It is true that the higher price will cause some students to drop out. Will these be the poorest students? There is some evidence that it will not be the poorest

students that drop out. The highest enrollment rates (about 100%) are in the northern region of Malawi which also happens to be the poorest. The richer central and southern regions had enrollment rates of 51.5% and 56.2% respectively in 1977. Thus there are other factors in Malawi that counter the expected positive relationship between income and enrollment. Supply side factors would not appear to explain this phenomenon since schools in all three regions are built through self-help means and the Government has a standing commitment to supply teachers to the schools. Therefore, the reason for the unexpected result must lie on the demand side. Some sort of price effect must dominate the income effect. This is likely to be the higher opportunity cost of time of the child in the richer household where the child can be usefully employed on the family farm. His expected return to education is likely to be lower than that of a poorer person. Chernichovsky (1981) finds evidence for this phenomenon in rural Botswana:

"On the other hand, when household wealth is expressed in terms of assets, the apparent price effect offsets and even dominates the wealth effect at low and intermediate levels of income. Holdings of cattle, small stock and land increase children's productivity and therefore the household's demand for child labor as well as the opportunity costs of schooling. Consequently, cattle holdings do not show a clear correlation with the chance of children to be enrolled in school, while small stock and land holdings show a negative correlation."

The higher tuition fee proposed is likely to discourage those with a low expectation of gaining significantly from education and those whose opportunity cost of time is high - not necessarily the poorest.

Another benefit to higher fees is that they will lead to fewer dropouts. Currently almost half the primary school enrollment is in grades 1 and 2. Those that choose to utilize the service at the higher price will receive better quality service and therefore will be less

likely to leave school. In addition they will form a better pool of potential entrants to secondary school. Finally, if fees are not raised quality will continue to deteriorate, and from the evidence presented in Part I, Section B, we know that it is the poorest who stand to lose most from a deterioration in quality.

By how much should the fees be raised and how does such an increase fit in with government objectives? We address the latter part of the question first. The government has three objectives in primary education: move towards universal primary education (UPE), reduce the average class size to 50, and find a way to finance expenditures in education. Are these objectives consistent, and what is the best way to meet them?

Even if primary education were free, UPE could not be achieved until the quality of the service is improved and people perceive education to be privately beneficial. To achieve UPE on a voluntary basis, the quality of the service must be improved. Thus UPE and a smaller class size, coupled with more books and supplies, go hand in hand. Similarly, given the limitations on the government budget, improved quality and higher school fees go hand in hand. Thus raising school fees while improving quality may be a way of meeting all 3 of the government's objectives.

By how much should fees be raised? Clearly, they shall not be raised by so much as to choke off demand at less than 50 students to a class -- nor by so much as to cause political riots. More in-depth analysis may be required to determine the appropriate fee structure. One solution, however, does suggest itself. It might be desirable to go back to the system of financing that existed before the IDA credit --

the tuition fee should cover all expenditures on books, supplies and maintenance. The system has the advantage of earmarking the money for a purpose clearly visible and directly useful to the consumer. Also, school fees must increase with inflation if quality is to be maintained. The recommendation is, therefore, to raise fees gradually over the next two or three years, until the cost of all books, supplies and maintenance is met by the fees, and then continue to raise them in line with inflation. One economist previously with the Ministry of Education has determined that in order to maintain a minimum level of books and supplies after the expiration of the IDA credit, fees will need to be raised from K2 to K3 per year in grades 1-5 and from K4 to K9 in grades 6-8 in 1980 Kwacha (Jones, 1981). If the fees are not raised, the shortfall would amount to 32% of the primary school budget which is almost the entire secondary school budget. The opportunity cost of not raising primary school fees is high. With the books and supplies taken care of, any additional allocation to primary education should go towards reducing class size.

(ii) Secondary Education: The secondary school system is tailor-made for application to our framework. There is a huge excess demand for secondary education -- only one in nine primary school graduates can obtain a position in secondary school. The returns to secondary school are so high that students often take the Primary School Leaving Certificate Examination several times in the hope of improving their scores and obtaining a position in secondary school. In fact almost half of all those appearing for this examination have taken the exam at least once before -- most of them have passed the exam at least once before. The excess demand condition is certainly fulfilled.

Is the current level of secondary school services beyond its (unconstrained) optimum? Based on acute manpower shortages in jobs that require a minimum of secondary school education, the answer is an emphatic no! Finally, even if the secondary school budgetary allocation is increased in real terms, it is extremely unlikely to expand to the level which will absorb all of the excess demand. Therefore all the efficiency criteria for application of the major result arising from our framework are met and, on efficiency grounds, the recommendation would be to raise fees and use the additional revenue to create more secondary school positions.

On the equity side, perhaps the best way to make sure that the service is at least as accessible as before to the poor would be price discrimination via scholarships. Presently, about one in nine students receive some sort of scholarship - the scholarships range from K5 to K85 per year with an average award of K23. The recommendation is to expand this scholarship system and simultaneously raise fees. As discussed in the first part of this paper the negative impact on equity of a price increase is reduced because (i) the alternative of rationing demand by means of exam scores tends to discriminate against the poor anyway; and (ii) wage compression will result from an expansion of the secondary school system.

The question of how much to raise the price is a little more complicated because of the three different kinds of school systems. While the tuition fee is the same (K20) in all three systems, the board charges are only K30 per year in grant-assisted and government boarding schools while the board charges in the government day schools run from K75 to K100. My suggestions are to (i) increase the tuition fee to K30

to cover the costs of books and supplies; (ii) bring board charges in all schools in line with each other to around K75-K100 per year; (iii) expand the scholarship system so that it is explicitly based on a combination of need and merit rather than the current system where students in government day and aided schools get a boarding subsidy regardless of income, and (iv) raise the tuition and board charges as the costs of providing these services increase.

(iii) Higher Education: For reasons mentioned in Part I and because of the shortage of secondary school graduates, the private demand curve for higher education is very low (well below the social demand curve). Even at a zero or negative user charge, there is no great excess demand for higher education. In such a situation, a policy of simply raising user charges would be likely to discourage entrants even though their social return is high. On the other hand, the university, with very few students, takes up a large share of the total education budget. Are there ways to raise revenues by charging for university education without reducing the quantity of higher education demanded? There are three ways in which this may occur:

(a) If the elasticity of demand for higher education is very low at the margin, there will be very little change in the quantity of higher education demanded. For several interrelated reasons, one would expect demand to be fairly inelastic for a small increase in price: (a) the private return on higher education would continue to remain high for a small change in price; (b) the students' ability to afford a low price has been demonstrated by their having paid a significant price for secondary school education which has a lower expected return and a higher uncertainty of return; (c) for many students some recourse to

inter-household transfers to fund a productive investment could probably be made; and (d) the demand for higher education is determined mainly by the supply of secondary school graduates which in turn is determined almost exclusively by the number of secondary school positions available.

(b) Another way in which revenues from university education can be raised without a drop in demand is to bring the private demand curve closer to the social demand curve. This could be achieved by diminishing the effects of the causes of divergence between the curves which were described in Part I. Among the most important reasons for the divergence are lack of perfect capital markets for borrowing and uncertainty of future income. Both these effects could be overcome by a system of loans to students under which repayments would be linked to salaries after graduation.

(c) A system of discriminatory pricing along the private demand curve could reduce the subsidy levels without affecting the quantity demanded. A scholarship scheme could achieve this. Some level of fees should be charged and scholarships which are based on household resources should be given to the needy.

The details of what the tuition fee ought to be and how the loan and scholarship schemes should be organized is best left to the Ministries of Finance and Education in collaboration with the university. At the least, even without elaborate loan schemes, student allowances (pocket money) should be cut back for entering students and the university should start charging for room and board. Possibly a room and board scholarship could be started for the very needy. Subsequently, as the system matures and students do not perceive free

university education as a right, a system of subsidized fees along with a scholarship and loan program could be introduced.

SUMMARY AND CONCLUSIONS

The paper analyzes in detail one of the ways to reduce the problem of recurrent expenditure in social sector services - that of raising user charges. It argues why a system of marginal cost pricing is not suitable in social sector services. Using a partial equilibrium static framework, the paper derives the efficient price for such services but points out that government resources are often not enough to meet the total subsidy required and the service falls short of the optimum. Under such circumstances, the paper uses the framework to derive a "second-best" optimal price and formulates a simple efficiency rule: Given our assumptions, whenever there is excess demand for the social service, raise its price. Since it is easy to observe excess demand and the other criteria are usually satisfied, the rule is very operational.

Since the only way to expand service is to raise user charges, if the price is not raised, the government must either ration the service in some way or let the quality deteriorate. The paper argues that from an equity point of view both these outcomes are likely to hurt the poor more than the rich. It concludes that in general the negative impact on equity of the higher price is reduced by the positive impact of an expanded level of service that makes the service more accessible to the poor. In fact, the positive impact on equity due to the expanded service may well outweigh the direct benefit of a lower price. However, this must be studied on a case-by-case basis.

The second part of the paper applies the framework to the education sector in Malawi. Both from an efficiency and an equity point

of view, it examines policy recommendations called for in primary, secondary and higher education. In primary education, the low user charges which have been unchanged from 1975 have resulted in a low level of quality as reflected by student-teacher ratios of 66 in comparison with the government's objective of 50. The declining quality has resulted in high dropout rates and is expected to hurt the poor more than the rich who more easily substitute private for public inputs. An application of the framework suggests that tuition fees should be raised so as to cover the costs of books and supplies. The savings from the lowered subsidy on books should go towards lowering class size. The higher fees will discourage some students. However those who decide to attend at the higher fee are more likely to have a lower dropout rate.

Secondary school is beset with a huge excess demand. Only one in nine primary school graduates obtains a position in secondary school. In this situation, an application of the framework suggests raising both tuition and room and board charges, and using the freed resources to expand the secondary school system. Because of the high excess demand there would be no difficulty in getting students to fill the additional positions created; the very poor could be helped by expanding the current scholarship scheme.

At the university level, where there are no fees and the students receive free room, board and pocket money, the financing problem is particularly severe. The situation is exasperated by a high cost per student of K3411. The solution revealed by the framework is to charge students for room and board as well as institute a tuition fee while simultaneously introducing a loan scheme under which repayments are linked to income after graduation. The loan scheme would tend to

reduce the divergence between private and social benefits and make beneficiaries more willing (and able) to pay for the service. Realizing that this may be difficult to do in the short run, it is suggested that, at first, student allowances (pocket money) should be discontinued for entering students and room and board charges introduced. To make sure that no one drops out of the service because of not being able to obtain funds for living expenses, a system of scholarships based on need should be introduced. Eventually a system comprising tuition fees, room and board charges, loans and scholarships should be instituted.

POSTSCRIPT

The recommendations made in Section II(B) of this paper were presented to the Government of Malawi following a World Bank mission that visited Malawi in October and November of 1981. In April 1982, the Government of Malawi decided to raise user charges in both primary and secondary schools. Primary school fees were raised by 50% in grades 1-5 and 25% in grades 6-8; secondary school fees were raised by 50% in all schools, and room and board charges were raised by 100% in grant-aided and government boarding schools -- almost precisely the recommendations made in this paper. This is clearly a step in the right direction. It is hoped, however, that the Government will look for ways to introduce user fees in higher education along with a scholarship scheme in both university and secondary school. In implementing these policy decisions, the Government should ensure, as discussed in this paper, that user fees are continuously increased along the guidelines suggested above and that the fees really do contribute to an expansion of the system or an improvement in its quality rather than substitute for funds earmarked for education.

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