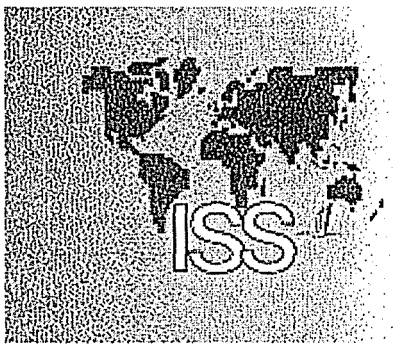

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The Equity Implications of User Fees in Philippine Higher Education: an Exploratory Analysis

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CHAPTER 1. INTRODUCTION

1.1 Background of the Study

Up until recently, publicly-provided education was offered to users at highly subsidized, and sometimes even zero, prices. That government should intervene in the education pricing mechanism was largely taken for granted by policymakers, at least up until the late 1970s. Beginning in the 1980s, a confluence of factors led to a re-examination of this policy, particularly in the case of developing countries. Rapid population growth, tight fiscal budgets, and slow growth prospects prevented public subsidies to education from growing fast enough to meet the ever-increasing demand for school places. Not only were resources insufficient; in many instances, they were also misallocated, tending to benefit the rich more than the poor. These, together with the growing influence of neoliberal approaches to development, set the stage for sector-wide reforms aimed at rationalizing price subsidies in education.

Since the early 1990s, the Philippines has been one such developing country on the road to education pricing reform. One of the more controversial policy initiatives to have come out of these efforts involves increasing cost-recovery in higher education. Although the higher education sector remains predominantly private, with the private sector accounting for 81 percent of all higher education institutions (HEIs), there has been a dramatic increase in the number of public HEIs over the last two decades. These public HEIs are totally dependent on national government subsidy, have higher average per unit costs, but are poorly-managed and produce less quality instruction than their private counterparts (Maglen and Manasan,1998). In addition, public HEIs provide blanket subsidies by charging fees that are uniformly low for everyone, a practice that has been criticized as leading to inequities in the distribution of education.

Proponents of user fees argue that increased cost recovery is beneficial both from the point of view of efficiency and equity. However, while greater reliance on the pricing mechanism may help government attain its efficiency objectives, both theory and empirical evidence would suggest that its impact on equity are less certain. The case against user fees basically rests on the possibility of a trade-off between efficiency and equity. The rules of efficiency, particularly allocative efficiency, which lie behind the concept of user fees capture the utilitarian ethic of fairness: what matters is the

maximization or satisfaction of welfare for the greatest number of individuals who collectively form society (Donaldson and Gerard, 1994). However, although user fees may lead to an increase in aggregate welfare, it could also lead to a situation where the distribution of education opportunities becomes even more regressive.

This paper attempts to make an exploratory analysis of why user fees can harm equity. Although the poor only account for a small minority of Filipino families with children in higher education[1], the fact remains that some of them do manage to gain access to the system. To the extent that some of these students are enrolled in public HEIs, an increase in user fees without sufficient exemption mechanisms could lead to them dropping out of school or moving to inexpensive but poorer quality private HEIs.

1.2 Statement of the Research Problem and Working Hypotheses

The central question this paper intends to answer is whether user fees in education are a desirable and feasible alternative to government financing, given considerations of equity.

This research question is guided by the following working hypotheses:

- Price elasticities of demand are influenced largely by income. In general, the poor will tend to have higher price elasticities of demand than the rich.
- The Philippine higher education market is heterogeneous in terms of cost, content and quality. Given such a market structure, a policy to increase user fees in public HEIs is likely to result in one of two things: either the poor move to the low-cost, low-quality segment of the private market, or they drop out of school altogether.
- To minimize equity losses, the amount of user fees charged should not exceed the amount that the poor are willing to pay. Exemption schemes for the poor in the form of student loans, voucher schemes, or scholarships should also complement the imposition of fees.

[1] Data from the 1999 Annual Poverty Indicators Survey show that of the 14.7 million families surveyed that year, only 2.03 million (13.8 percent) had children enrolled in tertiary school. Of this number, only 232,444 families, or 11 percent, belonged to the poorest 40 percent.

1.3 Significance of the Study

Reforms in public education expenditures are part of a larger set of initiatives to rationalize public spending in social services. The introduction of cost-recovery schemes in service delivery is a major component of these ongoing reforms, yet there in no known study that tries to look at the possible repercussions of such schemes on equity. In this sense, this paper is a pioneering, if somewhat tentative, attempt to take this aspect into consideration.

This paper is exploratory in the sense that it is meant identify the issues and research agenda that are relevant to this policy debate. Though largely qualitative, some quantitative analysis is attempted in order to substantiate or illustrate the paper's qualitative content. It is hoped that the conceptual framework, empirical design, and simulations presented in this paper can help inform on-going policy dialogues and provide a good starting point for further research on this topic.

1.4 Scope and Delimitation of the Study

The paper focuses on the partial equilibrium effects of user fees in Philippine higher education. While it has been asserted that greater cost-recovery in higher education would also affect equity in the entire education system[2], these general equilibrium effects have been excluded from this study.

The counterfactual methodology presented in this paper is based on utility consumption theory, and only evaluates welfare derived from education investments from the point of view of the household. Thus, the methodology does not capture all of the benefits and costs associated with higher education. Moreover, since the relevant household data set was not available for the Philippines, it was not possible to estimate the model in this paper. Without our own empirical results, the policy simulations presented in these paper had to make use of secondary data gathered from the existing literature. Since most of the numbers used in the simulations had to be assumed, the aim of the exercise was not to provide orders of magnitude, but to indicate the required line of research and how policy discussions can be fed by this type of analysis.

[2] For instance, if increased cost-recovery were to generate more revenues for spending on basic education. On the other hand, higher fees that discourage tertiary enrollment may also lead to more students dropping out of high school.

While recognizing that public finance policies are rarely pure outcomes of supply and demand interactions, this paper does not delve into the political economy aspects of greater cost-recovery. These aspects would in themselves constitute a fascinating take on the research question, and are best left to future work in this area.

1.5 Resume of Related Literature

During much of the 1980s, the World Bank came out with a number of publications arguing for greater cost recovery in education (World Bank, 1986, Mingat and Tan, 1986, Jimenez, 1987, and 1989). These studies argued that demand for education is largely inelastic with respect to increases in price. With price elasticities substantially less than one, user fees can be charged and government revenues increased without a substantial loss in welfare. However, these findings were largely criticized for failing to differentiate price elasticities of demand or willingness-to-pay between rich and poor individuals or households (Gertler and Glewwe 1989 and 1990, Colclough, 1996 and 1997, Colclough and Manor, 1991, Reddy and Vandemoortele, 1996, Appleton, 1997, Tilak, 1997)[3]. Critics of user fee increases argued that, given higher price elasticities of demand among the poor, user fees are likely to be regressive.

Evidence from both the willingness-to-pay literature and "before-and-after" studies tend to corroborate this view. Using data on demand for secondary schooling from rural Peru, Gertler and Glewwe (1990) report that price elasticities of demand decrease with income. Younger (1997) finds the same pattern for social services, including higher education, in the case of Ecuador. Studies which document actual experiences of countries that have adopted user fees support these counterfactual findings. In the main, price elasticities have been significant enough to result in reductions in total enrollments where school fees have been introduced or raised[4]. However,

[3] Although the price elasticity of demand and willingness-to-pay may be closely related, these two concepts do not mean the same thing. While price elasticity of demand measures the change in quantity consumed as a result of a change in price, willingness-to-pay refers to the highest price that a consumer is willing to face for a unit of a good. In the willingness-to-pay literature, this latter concept is used to determine the level of prices consumers are willing to face for a hypothetical service which is not yet available (Reddy and Vandermoortele, 1996).

[4] In Nigeria, for instance, primary enrollments increased from 6.2 million in 1976 to 14.7 million in 1983. Following the imposition of school fees in 1984, however, primary enrollments decreased by 12.5 million by 1986. (Hinchcliffe, as cited in Colclough, 1996). Citing results of other studies, Coclough further documents similar declines in enrollment in Mali and Zaire, following the introduction of book and tuition fees. Appleton (1997), on the other hand, cites a study by Fuller (1989) which documents how the imposition of fees led to a marked slow down in primary school enrollments in Malawi.

despite the growing amount of literature on this subject, it is unfortunate that other than Younger's (1997) study, very little attention has been paid to the equity implications of user fees in tertiary services. Neither has there been any study which looks at the equity implications of increasing fees in a public tertiary institution that belongs to a highly heterogeneous market.

1.6 Plan of the Paper

This paper is organized into six major chapters. Following this introduction, Chapter 2 presents an analytical framework for understanding the role of prices in achieving efficiency and equity in education. In particular, the chapter discusses how increased reliance on the pricing mechanism can result in a trade-off between these two objectives.

Chapter 3 presents the salient characteristics of the Philippine higher education market and delves into supply-side characteristics that have a bearing on equity.

Chapter 4 presents a counterfactual methodology for measuring the equity implications of user fees. The chapter proposes an empirical design that draws from the willingness-to-pay literature. We specify a behavioral model based on utility consumption theory which allows the approximation of discrete choices between no schooling and alternative higher education providers, to be estimated through a nested multinomial logit function. From this behavioral model, arc price elasticities of demand by income group, shifts between alternative providers, and the household's willingness-to-pay for higher education can be derived.

Chapter 5 presents policy simulations to determine the impact of higher fees on demand, enrollment, supply, and equity for a hypothetical public HEI. Since the empirical model described in Chapter 4, could not be estimated in this paper, the simulations assume a range of arc price elasticities of demand for higher education and utilize these for the exercise. Finally, Chapter 6 summarizes the paper's main findings, policy recommendations, and suggestions for future research.

CHAPTER 2. FRAMEWORK FOR ANALYZING EDUCATION PRICING POLICIES

Much of the arbitrariness that is sometimes found in policy design and assessment can be reduced simply by spelling out the definition of certain goals and the assumptions that work behind them. In this chapter, we attempt to do just that by establishing efficiency and equity as the major aims of education pricing policy (Section 2.1). This conceptual clarification is a crucial step that is often taken for granted by policymakers, who often have some implicit notion of what efficiency and equity mean. Yet, as will be evident in the succeeding discussion, the manner in which these terms are conceptualized and the relative importance attached to them can complicate our understanding of government's proper role in education finance.

After defining efficiency and equity, we then try to identify the conditions under which these objectives are best achieved in partial equilibrium. In Section 2.2, we first consider a first-best economy where neoclassical assumptions hold and where lump-sum transfer payments are possible. In Section 2.3, we then relax these restrictions and provide the rationale for government intervention and the current pricing policy. Section 2.4. presents the major criticisms that have been raised against government intervention in the case of higher education, and provides the arguments for user fees. In all of these discussions, we shall pay particular attention to the appropriate role of prices in the allocation of resources and the distribution of education. The conclusions to the chapter are set out in Section 2.5.

2.1 The Aims of Education Pricing Policy: Efficiency and Equity Defined

We formalize the evaluation of education pricing policy by treating expenditures in education as part of a more general problem of maximizing social welfare. Several conceptions of what constitutes welfare has been proposed in the literature. In neoclassical welfare economics, social welfare is defined as the aggregate of all individual utilities. However, utilities is a subjective concept that is difficult to observe and measure. To sidestep this problem, we relate social welfare to the consumption of goods and services that produces utility for the individuals

who make up society[5]. That is, the aim of education pricing policy is to maximize education's impact on social welfare, subject to the three basic constraints of tastes, technology, and resources (Barr, 1987). Within this context, we can look at efficiency and equity as the goals of education pricing policy.

The goal of efficiency demands the optimum allocation of scarce resources such that total welfare is maximized at the least possible cost. There are two sides to efficiency in education (Vos, 1996 and Winkler, 1990). *Internal* or *productive efficiency* obtains when individual education providers are getting the maximum physical output per unit of input at the least possible cost. This technical relationship between outputs and inputs is embodied in each provider's production function. *External* or *allocative efficiency*, on the other hand, is a much broader kind of efficiency that is achieved when welfare is maximized at the lowest possible cost. In the literature, external efficiency is measured by the rate of return to education investment.

There are two ways of measuring the rate of return to education. The private rate of return to education provides a calculus of costs and benefits accruing to individuals, typically measured by comparing the private costs of education to the additional earnings associated with an extra year of education. It is expectations about the private rate of return that figure into household decisions regarding education expenditures and that ultimately determine the private demand for education. The social rate of return, on the other hand, underlies the social demand for education and measures the costs and benefits of an extra year of education to society as a whole. Under neoclassical assumptions, where externalities and other types of market failures are assumed away, the private and social rates of return are one and the same, and the private and social demand curves coincide.

While efficiency is concerned with how education should be produced, *equity* is concerned with how education should be distributed. Equity refers to some notion of fairness and justice, and would differ depending on how each society defines these ideals. Achieving equity in education is important for two reasons (Mingat and Tan, 1996). First, education improves the future earnings capacity of the poor and creates greater opportunities for social mobility. In this way, education

[5] We adopt this definition mainly because it is consistent with the underlying theory of user fees. However, it should be said that this definition has been the subject of much debate in the literature. Central to the debate is the question of whether utility is a good measure of welfare. For alternative definitions of welfare that have been proposed, see Sen (1985), and van de Walle (1996).

can influence the long-run distribution of income and social status. Second, there is a perception that education is a basic human right and is therefore desirable in itself.

There are at least four common approaches to defining and measuring equity education (Mingat and Tan, 1996 and Donaldson and Gerard, 1994). These are:

a) Equity in education *opportunities,* as reflected by differences in access to *quality* education across population groups;
b) Equity in the *distribution of costs or expenditures* in education, especially in cases where education is highly subsidized by government. The easiest way to measure this would be terms of subsidies received as a student. A more complicated methodology would involve benefit-incidence analysis, which compares the taxes paid by various population groups to finance public spending on education vis-a-vis how much they receive in education subsidies;
c) Equity in *results or outcomes,* measured either in terms of achievement or learning across students, or in terms of increased income and upward mobility after the student leaves the education system; and
d) Equity in the *distribution of aggregate welfare gains,* as measured by the social rate of return to education.

Although equity in the distribution of outcomes or aggregate welfare gains may be the most desired indicators for equity, this type of analysis would concern the entire education process itself, rather than education access or financing alone. Such a target would be difficult to achieve, given that there are many factors involved which are beyond the influence of policy. For practical purposes, therefore, it may be better to talk of equity in terms of opportunities or expenditures. In our case, we look at equity in terms of opportunities, not just in terms of access, but access to education of a particular type.

Having defined the aims of policy, we now need to define the conditions under which efficiency and equity are optimal. We first consider efficiency and equity in education markets where the standard neoclassical assumptions prevail.

2.2 Efficiency and Equity Under Neoclassical Assumptions

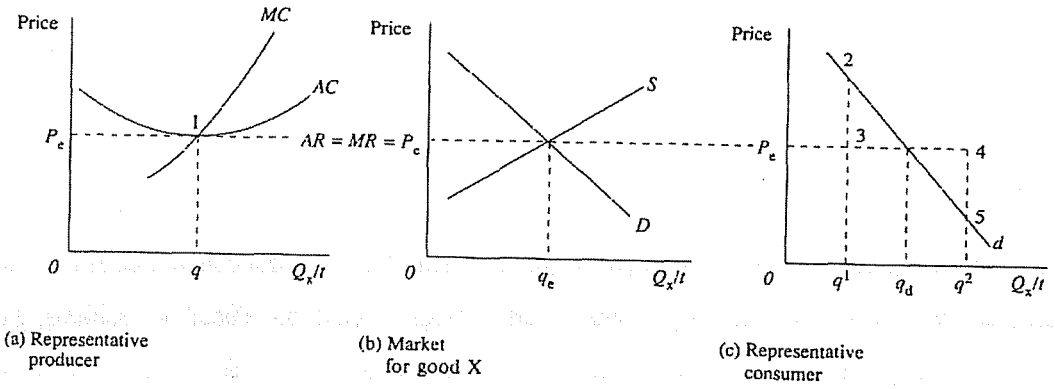
Under standard neoclassical assumptions, we would expect to find an education market where:

a) individuals are calculatively rational and perfectly informed;
b) perfect and complete markets exist for all other goods and services; and
c) there are no external effects in consumption or production.

From basic microeconomics, we know that under these assumptions, efficiency is attained at the point where marginal cost, marginal utility, and price are simultaneously equal. Put in another way, efficiency is reached at the point where the market demand curve intersects the market supply curve.

Figure 2.1. illustrates the partial equilibrium result of this intuition as applied to education[6].

Figure 2.1. Efficiency in Partial Equilibrium



Source: Cullis and Jones, 1998, page 3.

In panel a) the representative provider behaves in a profit-maximizing fashion, thus attaining productive efficiency. In panel b) the representative consumer maximizes his/her welfare from the consumption of education, in turn achieving allocative efficiency. We can measure this welfare by looking at the consumer surplus enjoyed by the individual, graphically depicted as the area above

[6] This analysis, as well as the one to come on the utility possibilities frontier, appeal implicitly to conditions of efficiency derived in general equilibrium. For a more extensive discussion, see Pindyck and Rubinfeld (1998) Chapter 16, and Varian (1999) Chapter 29.

the equilibrium price and underneath the demand curve. Thus, in panel c), both productive and allocative efficiency are obtained.

Within this framework, it is price that determines the most efficient allocation of resources. At the equilibrium price, it is impossible to rearrange consumption or production such that someone can be made better-off without someone else being made worse-off. This condition is known in the literature as Pareto efficiency, and forms the basis for evaluating allocative decisions from the efficiency perspective. Any change in resource allocation is a Pareto improvement if it makes someone better off without making someone else worse-off. Consequently, achieving efficiency in education would imply adhering to the marginal cost pricing rule, which demands that the price of any good or service be driven up to the point where price is equal to marginal cost.

That Pareto efficiency is an automatic outcome of marginal cost pricing is premised upon three major roles played by prices under neoclassical assumptions (Friedman 1984): i.e.: a) it transmits information regarding tastes, resource availability, and productive possibilities; b) it provides an incentive for people to adopt the least-cost method of production and to use available resources for the most highly valued uses; and c) it determines who gets what and how much --- in this case, the distribution of education.

From a strictly Paretian perspective, therefore, marginal cost pricing and the resulting Pareto efficiency are desirable, since most everyone would want to use scarce resources in a manner that would generate the greatest welfare. The bone of contention lies in the extent to which the distribution of education predicted under marginal cost-pricing is acceptable from the point of view of equity.

Equity and Notions of Distributive Justice

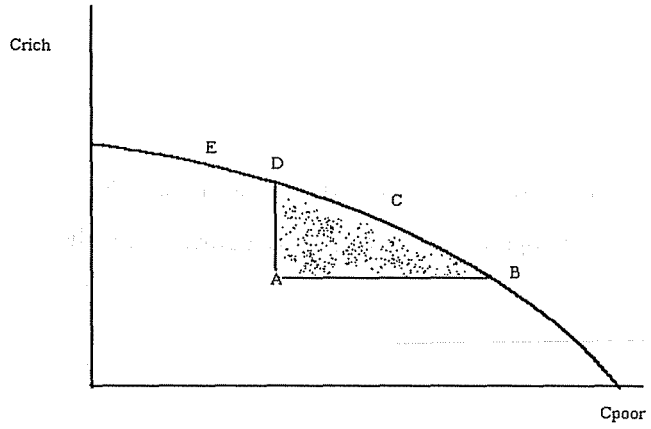
The shortcoming of Pareto efficiency to fully account for equity considerations stems from the normative judgements that underpin it, i.e. that: a) only aggregate and not relative welfare counts; and b) the distribution of education and welfare resulting from Pareto efficiency is acceptable.

In reality, however, every society has some shared, and not individual, notion of how education and welfare should be distributed (Young, 1994). While we can conceive Pareto

efficiency as being consistent with several distributions of education and welfare, not all of these distributions will be consistent with what a particular society deems fair or just. In countries where incomes are distributed unequally, marginal cost-pricing could lead to a situation where the poor are systematically rationed out of the education sector. Thus, while aggregate welfare may be at its highest when price is equal to marginal cost, this outcome could be at the expense of the poor whose willingness-to-pay falls below the equilibrium price.

To illustrate how a Pareto efficient allocation need not necessarily be an equitable one, we refer to the consumption possibilities frontier (CPF), which is the set of consumption levels associated with Pareto-efficient allocations of education. Consider a hypothetical society made up of two groups, one rich and one poor. We assume that only income determines access to education. Figure 2.2 depicts the consumption possibilities frontier for such a society. Any point on the CPF would represent a situation where resources are allocated inefficiently, i.e., where price is below marginal cost and the supply of education services is less than demand.

Figure 2.2. The Consumption Possibilities Frontier



Starting from point A inside the CPF, any change towards marginal cost pricing that results in a greater supply of educational services would lead to a movement towards the CPF. Any movement above and to the right of point A would be considered a positive-sum Pareto improvement; both the rich and the poor benefit from the increase in prices and enjoy an increase in utility. Thus, no redistribution would be necessary.

However, from a purely Paretian view, a movement from A to D would also be a Pareto improvement. As the willingness-to-pay for education is lower for the poor, they will not increase their consumption of education, although they will maintain the same level of utility as before. The rich, on the other hand, would be in a position to capture all the benefits from the increase in prices.

What is potentially more damaging to equity is a situation where the poor's demand for education is highly price elastic, such that any increase in prices will lead to the poor demanding less education. The resulting movement in such a case would be from point A to point E on the CPF, which is clearly a deterioration in the welfare of the poor.

Most, if not all, societies would perceive outcomes D and E to be unfair, and would therefore want some redistribution to take place. Pareto efficiency, however, does not tell us which point on the CPF would be considered equitable. Finding this equitable point is something that is not arrived at through an economic process, but through a political one. Clearly, the desirable point on the CPF would depend on how each society defines equity, i.e., on how society attaches weights and sums the welfare of individuals[7].

Evidently, marginal cost pricing would be a limited, if not potentially perverse, mechanism for pursuing the equity objective. Does this imply that marginal cost pricing must be eschewed for equity considerations? Not necessarily. Welfare economics would tell us that, in a first-best economy, where neoclassical assumptions hold and lump-sum income transfers are possible, a desired distribution can be achieved that is consistent with Pareto efficiency. In such a case, marginal cost pricing would still be the most efficient way of financing education[8].

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[7] Theoretically, a social welfare function (SWF) would depict these weights and reflect the desired distribution of utility between individuals (Gillis and Jones, 1987). Thus, the SWF would differ in shape, depending on the underlying notion of distributive justice. If, for instance, we were to construct a SWF of the form:

$$W(U1, \ldots\ldots, Un) = \sum Ui$$

then the resulting distribution would be the utilitarian one, consistent with the outcome in Pareto efficiency. In this case, each individual's utility would be given equal weight, and only total utility would matter.

On the other hand, we can conceive of a SWF that is more in line with the Rawlsian view of equity, where welfare only increases when the utility of the poor increases. That is:

$$W(U1, \ldots\ldots, Un) = \min \{U1, \ldots\ldots, Un\}$$

[8] This analysis will hold regardless of whether education is privately or publicly owned, or whether the education market is a mix of the two. So long as the neoclassical assumptions hold, and lump-sum taxation is available, the Lange-Lerner-Taylor Theorem predicts that resources would be allocated efficiently through the pricing mechanism (Mwabu, 1997).

2.3 Rationale for Current Pricing Policy

In the preceding section, we arrived at an ideal solution by assuming that first-best conditions prevailed[9]. These assumptions, however, are rarely met in real life. Market failures thwart efficiency, while systems of transfer payments to improve equity are difficult to implement (Younger, 1997). Once these ideal conditions break down, government's involvement in education pricing becomes more complicated.

Market Failures in Education

Like most other social services, the education sector is characterized by a number of market failures. The first and most obvious case would be where private providers are absent or insufficient to service education needs. Education is a lumpy investment to produce and there may not be enough private providers capable of raising the necessary capital to meet all of the demand for education. This is especially true in the case of higher education, where the cost of provision tends to be higher. Consequently, private education will be undersupplied, and will tend to cater only to the rich who can afford to pay the costs. In such a case, government must act as provider of education.

If the lack of a private market were the only market failure, and all the neoclassical assumptions prevailed, marginal-cost pricing would still be the most efficient way of allocating resources. However, there are at least three other market failures in education which frustrate the standard neoclassical assumptions.

The most oft-cited type of market failure in education is the presence of consumption *externalities*. Education generates benefits that do not only come in the form of private returns; there are benefits that are enjoyed by others in society as well[10]. Yet despite these external benefits, individual decisions to invest in education are largely based on perceived private returns.

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[9] That is, where neoclassical assumptions hold and lump-sum taxation is possible.

[10] In the new economic growth model, education is argued to create spillover effects that increase the productivity of the workforce as a whole (Blaug, 1987). For instance, a worker that is more educated enhances the productivity of others that work with him/her. The success of other human capital investments, such as those in health, are also positively influenced by a more literate populace.

Assumption b) is likewise violated in the case of education, given the presence of *credit market imperfections*. Ideally, individuals who expect a positive return on education but are cash-constrained should be able to borrow from credit markets to finance their education needs. However, credit markets tend not offer loans for education because they face imperfect information about the future incomes of students, and as such cannot accept the assurance of future incomes as collateral (World Bank, 1995).

Imperfect information on the part of students or their parents can likewise lead to underinvestment, a condition which violates assumption a). This stems partly from differences in perceptions of what constitutes a good education (Barr, 1987), and partly from uncertainties regarding future incomes.

There are two kinds of market failures arising from imperfect information on the demand side. The first involves *principal-agent problems*, which may materialize since students typically depend on their parents for decisions regarding education investments[11]. The second kind of imperfect information involves a failure on the part of students themselves to fully appreciate the benefits of education, the so-called *merit goods* argument. In both cases, the result is a lower private demand for education.

Market Failures and Equity

While market failures are typically seen as menacing on the grounds of efficiency, they can also be potentially damaging from the point of view of equity. In a country where income distribution is unequal, market failures tend to systematically affect the poor more than the rich (Barr, 1987, World Bank, 1995, Appleton, 1997, and Colclough, 1996).

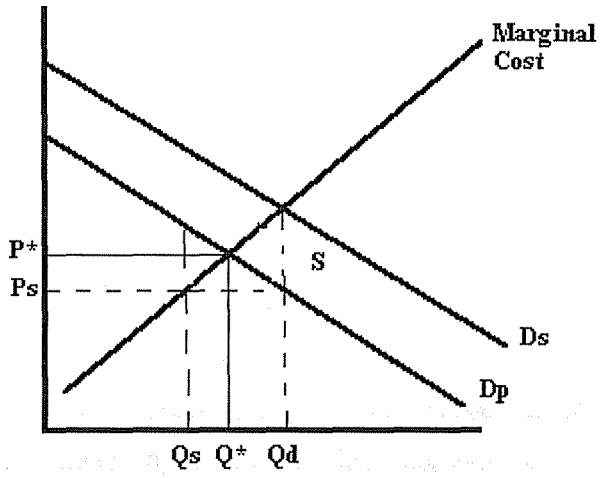
The poor tend to suffer more from capital market imperfections, since they are the ones who are more likely to need credit to finance education. Even if limited credit markets for education did exist, there remains the question of access: borrowers may not be aware of such opportunities, or the cost of participation may be too high; meanwhile, lenders would tend to consider the poor as high-risk borrowers, given the perceived high likelihood of default.

[11] Parents may be unaware of the returns to education, or may be more concerned with the returns to education that will directly benefit them (Appleton, 1997). Parental decisions could also be influenced by cultural biases, which could lead in systematic underinvestments in education of, say, females. Appleton (1997) terms this imperfect parental altruism.

Imperfect information likewise tends to affect the poor more adversely. On the one hand, the poor may undervalue education, having never experienced it themselves. On the other hand, even if poor families were aware of the returns to education, there is still the question of whether they would have access to all the information they would need to make a rational choice, such as information about prices and school quality.

Ultimately, the presence of market failures and their effects on efficiency and equity leads to investments in education that are below the socially optimal level. This outcome has traditionally formed the basis for price subsidies that signal a departure from the marginal cost-pricing rule. Figure 2.3. shows the partial equilibrium outcome of market failures and the role of price subsidies in reducing the losses from the same.

Figure 2.3. Pricing Policy with Market Failures



In the graph, the presence of market failures causes private and social benefits to diverge, effectively driving a wedge between marginal cost and the true social valuation of education. Put in another way, they lead to a social demand curve, Ds, that is above the private demand curve Dp, for education. This implies that the price for education should be less than marginal cost, the difference being made up for by price subsidies. Therefore, to induce individuals to consume the socially optimal amount of education, government provides a price subsidy at a rate equal to S. This drives up demand from Q* to Qd.

Thus far, we have established that the presence of market failures and equity considerations justify government intervention in education provision and finance. However, while government provision and price subsidies may be justified in theory, in reality, they have given rise to a new set of efficiencies and inequities. Dubbed as government failures, these criticisms have been most prominent in the case of higher education and have prompted calls for a greater reliance on the pricing mechanisms through user fees.

2.4 Criticisms Against Government Intervention: The Case for User Fees

The argument against state provision and price subsidies stems from the simple observation that, in most development countries, government resources are not sufficient to provide education to everyone who demands it. Thus, at the subsidized price, there is excess demand and less supply of educational service (Vos, 1999a).

The intuition behind this argument can easily be seen in Figure 2.3 above. The problem arises when government resources are not sufficient to fund the entire subsidy, and can only meet demand equal to Qs. At Qs, therefore, there is an excess demand equal to QsQd.

In the literature, government resources are said to be unable to meet education demand because of three things: population growth that runs ahead of output growth, low taxation[12], and overestimation of market failures, which leads to social demand curve that is higher than it should be. Although all three could hold true at once, user fee proponents argue that, in the case of higher education, the third cause tends to be more prominent, for several reasons:

a) the externalities rising from tertiary enrollment are weak and relatively unimportant; higher levels of education enroll a small minority, confer knowledge that is highly specialized, and the benefits are typically enjoyed by the individual who consumes the education (Appleton, 1997, and Jimenez, 1987);
b) imperfect information is also less of a problem in higher education. By the time students reach higher education, they would presumably be mature enough to make informed decisions on their own regarding schooling decisions; this lessens the potential principal-

agent problem between parent and child (Appleton, 1997). The merit good argument likewise ceases to be important, since most everyone is aware that there are high private returns to education and would therefore consume the proper amount of education. Should some degree of imperfect information persist among the poor, proponents argue that this is best corrected through information dissemination; and

c) although credit market imperfections will tend to be more problematic in higher education due to its higher cost, these imperfections are best handled separately, rather than through uniform price subsidies which distort the allocative role of the pricing mechanism (Jimenez, 1987).

For all these reasons, the case for user fees have been thought to be strongest for higher education.

If we accept these arguments to be valid, then clearly the social demand curve in Figure 2.3 would be much lower, if not equal to the private demand curve. If we take the extreme position and assume that the latter is true, then it is a small step away to understanding why user fees are argued to increase efficiency.

From the discussion in section 2.1., we know that at Qs, allocative efficiency is not obtained. This we can measure by the amount of consumer surplus enjoyed by consumers at the subsidized and market prices. Clearly, an increase in the amount of fees from Ps to P* would lead to an improvement in consumer surplus.

Moreover, where prices are uniformly low or nil, inefficiency in production and consumption arise. Neither providers nor households face a hard budget constraint and appreciate the true social costs of obtaining or providing more education[13]. At Qs, therefore, productive efficiency is also not attained. By raising user fees, the pricing mechanism's built-in incentives would ensure that both providers and users are accountable and thus behave in a more efficient fashion.

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[12] High administrative costs have also meant that many developing countries are far from reaching their taxation potential, and meeting the resource demand in education has often come at the expense of other sectors (Jimenez, 1987).

[13] Minimal fees lead to an inefficient mix of social services, increasing private demand for services whose social rates of returns are low (Mingat and Tan, 1986). As a result, higher education continues to account for a bigger share of education expenditures, even if returns to this level are only half of the returns to primary education (World Bank, 1986).

User Fees and Equity

To the extent that user fees result in a more rational use of resources for education, there would be a strong argument for user fees on efficiency grounds. However, in 2.2 we also established that the ultraistic pursuit of efficiency could lead to a situation where the poor end up being rationed out of the system, and only the rich benefit from the increase in prices. Such an outcome is not unlikely, since the poor's demand for education would be more responsive to changes in price (i.e., more price-elastic).

Nonetheless, proponents of user fees contend that this potential trade-off between efficiency and equity is likely to be minimal in the case of higher education, since majority of the students in this level come from rich families, to begin with.

This inequity is often blamed on the replacement of the pricing mechanism with other forms of rationing. In higher education, it is argued that opportunity costs, along with rationing on the basis of ability[14], skew access to education in favor of the rich. This would not have mattered so much if taxation were progressive; in such a case, the rich would essentially be bearing the cost of their education. Clearly the opposite is true in most developing countries, where tax incidence is often regressive.

Should some of the poor manage to gain access to higher education, proponents of user fees argue that revenues generated from user fees can be used to provide scholarships and loans to poor students. In this way, poor and deserving students will not be forced to drop out because of higher fees.

The argument that user fees will not be harmful to equity rests on several assumptions regarding the supply of and demand for higher education. If we accept the assumptions that:

a) only the public sector provides education;

[14] With a supply constraint, school places are rationed on the basis ability, as measured by performance in entrance examinations. This form of rationing is meant to give rich and poor students of the same ability equal chance in securing a place in higher education. However, performance in entrance tests itself tends to be highly correlated with income; rich students can make up for lesser ability by investing in tutoring to help them hurdle examinations.

b) public higher education is homogenous;
c) with excess demand, it is access to school places that is rationed, rather than quality;
d) higher fees will not lead to a significant decline in enrollment; and
e) the revenue generated from user fees will be sufficient to exempt or provide scholarships to poor students,

then imposing user fees will, at best, have a neutral effect on horizontal equity (i.e., the poor who demand education will still have access through scholarships) and a positive effect on vertical equity (i.e., only the poor will benefit from the subsidies while the rich will pay their own way) .

Once we relax these assumptions, however, the effects of user fees on equity are less certain. To fully account for the equity impact of user fees, at least three other factors must be considered. First, how is the existing supply of higher education characterized? Although rare, some developing countries like the Philippines have private, second-chance schools which serve those rationed out of the public sector. Where public and private providers exist, supply-side characteristics are likely to vary by type of provider. In addition, heterogeneity may exist not only between public and private providers, but also within public and private providers.

In the presence of heterogeneity and differentiated products, achieving equity in education opportunities ceases to become just a question of access; the quality of the alternatives also becomes a critical factor. Thus, we must somehow be able to consider whether prevailing rationing mechanisms systematically ration the poor into the lower quality segment of the market.

Second, what will be a household's behavioral response be to an increase in fees, given their own utility-maximizing preferences? Will patterns of demand change as a result of higher fees? Who will opt out of higher education, stay in the public sector, or switch to private providers? If an increase in user fees causes a shift between providers, will this lead to a situation where some students end up in the low-cost, low-quality segment of the higher education market? And will it be the poor who are more negatively affected than the rich?

Finally, what is the highest amount families would be willing to pay for higher education, and will exemption schemes suffice to help those whose willingness-to-pay fall below the new price?

2.5 Conclusion

In this chapter, we defined efficiency and equity as the objectives of education policy and set out the role of marginal cost pricing in achieving them. Of these two objectives, Pareto efficiency is the only automatic outcome of a price mechanism performing under neoclassical assumptions. But even when Pareto efficiency is attained, there is still the question of whether the resulting distribution is equitable. It is these conceptions of fairness and justice that help define the ways in which distribution decisions are made in practice. Settling equity considerations in education is the first instance where government intervention in education finance steps in, ideally in the form of lump-sum income transfers.

However, this whole scenario becomes even more complicated in the presence of market failures. In such a case, it becomes difficult to disentangle the efficiency objective from the equity objective, and both must be settled through government intervention. This intervention has mainly taken the form of direct provision at subsidized prices that are meant to induce consumption of the socially optimal level of education.

These theoretical justifications notwithstanding, government has increasingly been perceived as being remiss in its duty to maximize efficiency and equity. Government, unable to represent the true preferences of individuals or to appreciate the true valuation of scarce resources, has wittingly or unwittingly given raise to inefficiencies and inequities of its own. In contrast to market failures, these shortcomings have been dubbed government failures, and have formed the basis for neoliberal arguments to impose a higher level of user fees, especially in higher education. Put simply: made to choose, "an imperfect market is better than an imperfect government (Colclough, 1991)."

While there may be strong efficiency arguments for user fees in higher education, the equity implications of such a policy change is open to debate. At the minimum, quality differences and heterogeneity among providers, the demand response of households, and the households' willingness-to-pay need to be considered fully.

In the next chapter, we begin to contextualize the theoretical content of this paper by turning our attention to the Philippine higher education market. The chapter also attempts to answer the first set of issues identified above: is there heterogeneity among higher education alternatives in the Philippines, and what does this imply for equity?

CHAPTER 3. THE PHILLIPINE HIGHER EDUCATION SECTOR

In this chapter, we introduce the Philippine higher education market and take stock of supply-side characteristics that play a huge role in determining the distribution of education. The chapter is organized as follows: Section 3.1 briefly presents the history of the Philippine higher education system and the public-private mix of the market, focusing mainly on the relative importance of each sector in terms of magnitude and enrollments. Section 3.2 delves deeper into the degree of heterogeneity and market segmentation, both between and within the sectors. In Section 3.3, this heterogeneity is discussed in relation to the varied rationing mechanisms at work in these different market segments. Section 3.4 traces out the equity implications of these supply-side characteristics. Finally, Section 3.5 concludes.

3.1 Philippine Higher Education Sector: Description and History of the System

In 1998, there were 1,393 institutions of higher learning in the Philippines catering to some 2.4 million students. With a gross enrollment ratio of around 35 percent, the extent of Philippine higher education is more comparable with that of developed rather than developing countries. Transition rates in the Philippines are likewise high: close to 90 percent of all secondary school graduates continue on to some form of higher education (Johanson, 1998). One other characteristic distinguishes the Philippine higher education system from the rest of the developing world: the strong presence of private providers. Eighty-one (81) percent of higher education institutions (HEIs) and 75 percent of enrollments were accounted for by the private sector in 1995. These institutions are run without the benefit of government subsidy.

Although private institutions have been around for over 400 years, their role in education has changed considerably in the past 50 years. For much of the Spanish colonial period, private sectarian education enjoyed a monopoly that catered exclusively to the ruling elite. It was not until the turn of the century, when colonial rule passed from the Spaniards to the Americans, that the first state-owned and funded higher education institution, the University of the Philippines (UP), was established. Although ostensibly patterned after the American's system of mass higher education, from its inception, the UP was meant to provide high-quality higher education to a select few on the basis of academic merit.

Since the establishment of the UP in 1908 up until the 1950s, the growth in public HEIs was fairly slow. Given the paucity of slots in these public HEIs and the emerging excess demand, second-chance private schools began to appear for much of the period after the 1940s (Paderanga, 1989). Majority of these new private schools were non-sectarian institutions offering vocation-oriented academic programs that required minimal capital investments (Swinerton, 1991).

The emergence of these private second-chance schools notwithstanding, enrollments were still outpacing the growth in school places by the 1960s. To remedy the situation, college-level instruction was added to existing public high-schools, and agriculture and trade schools. This eventually gave rise to combined schools that in turn became full-fledged state universities in colleges (SUCs).

In recent decades, this continued practice of upgrading secondary or post-secondary institutions into SUCs has been blamed for the unwarranted rise in the number of public higher education institutions. Between 1980 and 1999, a total of 70 SUCs were created, increasing the total from 28 in 1979 to 108 in 1998. Created without reference to the National Higher Education Plan or to national or regional priorities, these new SUCs often operate with excess capacity. Moreover, rather than complementing the private sector by offering academic programs and research activities that are too costly for private HEIs to provide, the newer SUCs have tended to offer vocation-oriented programs as well. This is claimed to have crowded out private participation in the higher education market. Whether this is the cause or not, it is true the private sector's share in total higher enrollments declined in the mid-1980s and has since stagnated at 75 percent (Table 3.1).

Table 3.1. Share of Private Higher Education (Percent of Total)

	1955	1965	1975	1985	1995	1999 (estimate)
Institutions	93	94	83	72	79	81
Students	96	89	86	85	75	75

Source: CHED Statistics, as cited in Johanson (1998).

3.2 Degree of Heterogeneity and Market Segmentation

The Philippine higher education system is characterized by a high degree of heterogeneity not only between the public and private sectors, but within each of these sectors as well[15]. While it would have been instructive to show this heterogeneity in terms of stringent efficiency and equity criteria, the lack of data rules out such an approach. Most of the evidence in this direction are anecdotal at best[16]. Absenting sufficient data, however, these anecdotal evidence will have to suffice.

The Public Sector

Among the public institutions, there is the minority of highly-subsidized, high-quality state universities and colleges[17]. This class of public HEIs offer a mix of undergraduate, graduate, and research programs, the former consisting of degrees that are less vocation-oriented than their private counterparts. At the top of this hierarchy is the UP, the only SUC among the three elite higher

[15] The table below categorizes the different types of HEIs that currently exist in the Philippine higher education market.

Table 3.a. Categories of Philippine Higher Education Institutions

Public Sector	Private Sector
State Universities and Colleges (SUCs): chartered public HEIs	Private sectarian universities and colleges: incorporated institutions, usually non-profit, affiliated to a religious organization
CHED Supervised Institutions (CSIs): non-chartered public HEIs financially supported by government	Private non-sectarian universities and colleges: incorporated institutions not affiliated with any religious organization
Local Universities and Colleges: Public HEIs set up, and financially supported by, local government units	Stock education institutions: incorporated for-profit universities and colleges
Other government schools: Other public secondary and non-secondary education institutions that offer higher education programs	Non-stock education institutions: incorporated non-profit universities and colleges
	Educational foundations: incorporated non-profit HEIs that re-invest income in institutional development

Source: Maglen and Manasan (1998)

[16] The database for higher education is notorious for not having information necessary for policy-making and monitoring performance. Johanson's 1998 study on the Philippine higher education system makes some cursory comparisons between the type of HEI vis-a-vis external efficiency indicators such as employment and income of graduates. Without any comprehensive data on the socio-economic background of students, however, it is hard to account for possible self-selection bias in his analysis. Common-sensically, we would think that more able students, who also tend to come from more affluent families, would self-select themselves into the higher-quality schools. Maglen and Manasan (1998) have a different take on the issue, comparing instead the operational costs of HEIs with the quality of instruction. However, the data is presented in terms of separate averages for the public and private sectors. As such, much of the heterogeneity that is found within each sector is lost in the analysis.

[17] Of the 108 SUCs operating in the country today, only 37 are reported to be of good standing.

education institutions in the Philippines[18]. In 1998, UP accounted for 27 percent of the public budget going to SUCs. Altogether, the top 20 SUCs accounted for 58.3 percent of the SUC budget (PCER, 1998).

Despite having the biggest share of government subsidies, it is claimed that majority of students who attend these high-quality public HEIs come from affluent families (Edcom 1993, PCER 1998, Maglen and Manasan, 1998, and Johanson, 1998). For instance, more than 80 percent of UP students come from higher income groups (Philippine Daily Inquirer, June 5, 1999).

The vast majority of public HEIs are non-selective, catering to a mass rather than an elect clientele. These tend to spend much less on average per student, and take in a student body with poorer academic and socio-economic background (Arcelo and Sanyal, 1987, as cited in Paderanga, 1989). Like their private counterparts, these public HEIs offer programs that are more vocation-oriented[19]. However, unlike their private counterparts, this majority is more costly to operate but are of poorer quality (Maglen and Manasan, 1998 and Johanson, 1998).

In 1997, public HEIs operated at costs that were thrice as much as the private sector (Table 3.2). Yet fees in public institutions are uniformly low for everyone, except in the case of the University of the Philippines, where fees are income-contingent. UP charges a maximum of 300 pesos per unit, although the majority are reported to charge a meager 10 - P25 pesos (roughly, between US$ 0.20 - US$ 0.50) per unit[20]. However, the level of fees would also tend to differ among the various state schools. The fact that public HEIs fare poorly in terms of cost-recovery has been the main reason cited for the imposition of higher fees (Edcom, 1993, PCER, 1998, Maglen and Manasan, 1998, Johanson,1998, and MTPDP, 1999).

[18] Completing the trio are LaSalle University and the Ateneo de Manila University (Johanson, 1998), both of which are private sectarian institutions.
[19] Some also have a heavy non-degree component.
[20] In December 2000, the exchange rate was at 50 pesos to a dollar.

Table 3.2. Private/Public Operating Cost Ratios Per Student, 1986, 1994 and 1997
(pesos in current prices)

	1986	1994	1997
Public HEI	14,590	20,931	24,777
Private HEI	2,443	5,931	8,067
Private/Public Ratio	0.17	0.28	0.33

Source: Maglen and Manasan (1998)

The Private Sector

Within the private sector, heterogeneity is not so much manifested in the type of programs offered; operating mostly on the basis of fees and profit, private schools offer vocation-oriented programs in areas that mirror prevailing or emerging employment opportunities. Thus, except for the more elite private schools, majority of private schools have a minimal post-baccalaureate and research component.

Heterogeneity in the private sector is more evident in terms of differences in quality. On the one hand, very high quality is available at high prices in some selective private sector institutions. Private sectarian institutions such as the Ateneo University and LaSalle University lead the pack among this high-cost/high-quality segment. However, there is also that segment of the private market that offers mass education at relatively low prices. More popularly known as "diploma mills," these private HEIs offer instruction of a lesser quality (Johanson, 1998). In between these two segments, there exist a number of private institutions, mostly proprietary schools, that offer good quality instruction at reasonable cost.

3.3 Rationing Mechanisms in Higher Education Institutions

The heterogeneity in programme content, cost and quality reflect the original intent and target clientele of these various higher education institutions. Consequently, HEIs would also differ in their rationing mechanisms.

We can think of rationing in higher education as taking two forms. On the one hand, institutions may follow specific criteria for selecting potential students into the system. On the other hand, costs borne

by the students or households will also play a determining role in the selection of students into particular HEIs. What types of explicit rationing mechanisms are at work in Philippine HEIs?

The answer depends on which market segment you are looking at. In higher quality public HEIs, where the number of school places are severely limited, it is standard to ration access on the basis of ability. These HEIs administer their own admissions tests and use these (often in conjunction with secondary school grades and scores in the National Secondary Achievement Test) to ration school places. As a result, access to these institutions are highly competitive. Those who cannot secure a place in these state institutions have two options: either they opt to enroll in a less-selective public HEI of lower quality, or they can vie for a place in one of the "second-chance" private schools.

Once we move to the private schooling option, privately-incurred costs start to play a significant role in rationing school access. Despite having lower per student operating costs than public HEIs, both tuition and other privately-incurred costs tend to be higher in private HEIs (Table 3.3). On average, a student in a private HEI would spend 1.7 times more than his/her counterpart in a public HEI. The difference in tuition fees is even more glaring: on average, tuition costs in private HEIs are nearly four times as much as in public HEIs[21].

Table 3.3 Average Expenditure per Student by Families on Higher Education, by Item and Sector, 1994/1995 (pesos in current prices)

Item	Public HEI	Private HEI
Tuition and Other Fees	1,908	7,190
Parent-Teacher Association	80	231
Miscellaneous Fees	655	1,253
Books	922	1,717
School Supplies	779	1,091
Other materials	812	1,481
Uniforms	1,748	2,062
Transport	3,308	3,706
Board and Lodging	3,833	5,422
Total	14,045	24,153

Source: Maglen and Manasan (1998)

[21] But these costs are only averages for the private sector. In fact, among exclusive private HEIs, per student expenditure on tuition fees alone could be 2.7 times greater than the average total expenditure per student in private HEIs.

What do these costs imply for students who are rationed out of the high-quality public HEIs? For those who have the means, they can secure a place in one of the exclusive, high-cost, high-quality HEIs, where places are typically rationed out on the basis of both willingness-to-pay and academic performance. Those who do not can enter inexpensive schools that could buy them either good or poor quality instruction. For this latter group of students, where they find themselves in `this range of cost and quality will depend on how well-informed they are.

From the preceding discussion, we can identify at least three explicit forms of rationing. The first two forms try to restrict access, by means of either ability or willingness-to-pay, or both. However, to the extent that there are public and private HEIs where everyone is given entitlement, rationing of quality is also prevalent in the system.

There is, however, one implicit rationing mechanism that is common to all HEIs: the opportunity cost of attending an additional year in higher education, as measured by foregone earnings. Foregone earnings is a significant cost for most students, particularly those about to pursue higher education. Needless to say, this opportunity cost will tend to discourage the poor from attending higher education more than the rich.

3. 4 The Implications of Supply –Side Characteristics on Equity

Where variations in quality exist and differing rationing mechanisms are prevalent, supply-side characteristics are likely to have a bearing on the distribution of education. To see how these characteristics may be damaging to equity, we now try to trace their effects on the poor's schooling decisions and their access to quality education.

If we assume that education is a normal good, we can expect that higher-income households will choose the high-price, high-quality option, while poorer individuals will choose the low-price, low-quality option. However, to the extent that a low-price (highly-subsidized), high-quality option is available, we can expect that both high- and low-income would prefer this option foremost.

In the best of worlds, a bright student coming from a poor household should aim for and actually succeed in getting a place in one of the high-quality public higher institutions. Ostensibly

this is because rationing in these schools is based on ability rather than willingness-to-pay. Empirically, however, it has been shown that academic performance is itself correlated with income. By dint of having attended better-quality, private secondary education[22], well-off students have an advantage over their poorer counterparts who come from lesser quality public secondary schools. Well-off students also have the added advantage of getting extracurricular instruction that is specifically meant to prepare them for admissions tests.

Thus, given two students with equal ability, one rich and one poor, the rich student is more likely to secure a place in the better public HEIs. Even granting that the poor student is of better ability, there is still the question of equal power. Despite having a good chance of getting a place, a poor student may simply not have the confidence to give it a try (Barr, 1987).

Once they are rationed out of these high-quality public HEIs, a poor student has only two realistic choices. Faced with imperfect information, the absence of a credit market for higher education, and the dearth of scholarships for students in private HEIs[23], either he/she secures a place in a low-cost, low-quality public or private school, or he/she drops out of school altogether. Consequently, "... the effective demand for higher education follows the income distribution of families --- the few rich students can afford all the options...; a large number of from the middle lass can afford institutions with middle-level fees; and the masses of the poor, those institutions with the lowest fees. The poorest families have *zero*[24] higher education option. This point is reflected in the fee structure of the higher education system. There are only a few high-cost HEIs since only a small proportion of the population is rich and can afford them. Thus,... the distribution of students follow the distribution of income. School fees range from 1,000 to 24,000 pesos, with many HEIs at the lower end of the fee structure... Because of capital market imperfections, a large number of students is forced into low-quality inexpensive programs and schools, causing these to proliferate (Tan, 1995, as quoted in Johanson, 1998, p. 25).

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[22] See Jimenez and Lockheed (1995).

[23] In academic year 1998/99, publicly-funded scholarships for disadvantaged students covered less than one percent of the students enrolled in private HEIs. Not only has the coverage been miniscule; the value of the stipend is reportedly insufficient as well. In terms of the entire population of higher education students, publicly-funded scholarship programs and loan assistance programs are reported to cover less than two-tenths of one percent of the student population (Johanson, 1998).

[24] Own emphasis.

3.5. Conclusion

The existing private-public mix has made the Philippine higher education very diverse in terms of content, quality, and price. This diversity is the system's strength as well as its weakness. On the one hand, it is a highly flexible system; both part-time and full-time programs are available and there are enough choices to accommodate students from various socioeconomic backgrounds, preferences and financing capabilities (Paderanga, 1989). On the other hand, differences in content, quality, rationing mechanisms, and associated costs have led to a pattern of utilization where the rich benefit most from the best in the lot, while the poor end up being rationed into the cheaper, lesser quality alternatives.

Given these, it is not difficult to see why a policy that imposes or increases user fees in all public HEIs is potentially regressive. To the extent that majority of students enrolled in inexpensive, lower quality public HEIs come from poor households, there is a possibility that an increase in fees will cause them to choose the no schooling option (unless they are provided with direct financial assistance). Also, to the extent that some highly-able, poor students manage to find places in high-quality public HEIs, care should be taken that higher fees do not ration them into lower-quality private alternatives or out of the system altogether. Mwabu (1997) warns, for instance, that regardless of the price elasticity of demand, a modest increase in fees that starts from a low base is likely to induce shifts to lower-quality alternatives or to no utilization at all.

In the next chapter, we shift our focus to the demand-side of the market for higher education and present a counterfactual methodology that accounts for the behavioral response of households to an increase in fees. Known in the literature as willingness-to-pay, this methodology has become one of the more prominent approaches to estimating the distributional impact of increases in service fees.

CHAPTER 4. MEASURING THE HOUSEHOLD RESPONSE TO INCREASED USER FEES

From Chapter 2, we know that the main criticism raised against user fees has to do with equity : since the argument rests on demand and price-elasticities of demand for education in the aggregate, it attaches the same value to school attendance by all individuals regardless of income levels. However, there is strong *a priori* reason to believe that the poor are more sensitive to price changes than the rich. If this is the case, then user fees could prevent the poor from gaining access to education. Moreover, from Chapter 3, we established that, since the market is highly segmented and offers products that are differentiated, shifts between alternative providers will also have implications on equity.

In this chapter, we try to develop a counterfactual methodology that incorporates these likely behavioral responses of households as a result of increased user fees. This counterfactual methodology is based on a partial equilibrium revealed preference framework. More commonly known in the literature as willingness-to-pay, this methodology is suited to our purpose since it: a) reflects how households would choose among different providers; b) allows price elasticities of demand to vary by income; and c) allows the estimation of the likely equity, welfare, and revenue outcomes of an increase in the level of user fees.

While it would have been desirable to actual carry out the estimation, the lack of requisite data unfortunately preclude us from doing so. To this end, the main aim of this chapter is to outline a methodology that can be used in future research. The chapter also makes some recommendations as to how existing data sets can be improved to make them more amenable to analysis.

This chapter is organized as follows: Section 4.1 and 4.2 specify the behavioral model and demand equations for empirically estimating willingness-to-pay. Section 4.3. identifies some practical considerations regarding the relevant data set and variables for carrying out the empirical work. Section 4.4 notes the limitations of the willingness-to-pay methodology, while Section 4.5 concludes.

4.1 The Behavioral Model

In Chapter 2, we defined investments in education as part of a more general social welfare maximization problem. At the household level, this is achieved by maximizing utility. In that same chapter, we also defined household utility as being indirectly related to the consumption of goods and services. As such, households choose the amount of education that maximizes their utility.

We utilize a framework where utility depends on incremental human capital derived from an additional year of higher education, and the consumption of all other goods and services[25]. Within this framework, demand is modeled as a discrete choice between schooling alternatives. In the case of the Philippines, we know that there are six alternatives, (including no schooling) to choose from:

a) no schooling;
b) highly-subsidized, high-quality public education (Pub1);
c) highly-subsidized, low-quality public education (Pub2);
d) high-cost, high-quality private education (Priv1);
e) average-cost, average quality private education (Priv2); and
f) low-cost, low-quality private education (Priv3).

Given these, the household will choose the alternative that yields the highest utility.

We can formalize the model by specifying the utility obtained from each option; that is, the expected utility conditional on receiving higher education from provider i, such that:

$$U_i = U(S_i, C_i) + \varepsilon_i, \quad i = \text{Pub1, Pub2, Priv1, Priv2, Priv3} \qquad (1)$$

where S_i = addition to human capital from another year of education

C_i = consumption possible after incurring all costs of sending the student to school

ε_i = random taste shifter.

[25] See Annex A for the general framework. This specification follows Gertler and Glewwe (1990).

All the options are subject to a budget constraint that is equal to

$$C_i + P_i^* = Y \qquad (2)$$

where P_i^*= costs of sending the child to school, including opportunity cost

Y = annual household disposable income.

To the extent that user fees (as part of Pi*) changes, then it is possible to estimate the effect of an increase in user fees on school enrollment. Our utility-maximizing condition now becomes:

$$U^* = \max (U_0, Upub1, Upub2, ..., Upriv3) \qquad (3)$$

where U^* = maximum utility, and

U_0, Upub1,....., Upriv3 = conditional utility functions specified in (1),

subject to the constraint specified in (2).

The solution to this utility-maximization problem can be interpreted as the probability that each alternative is chosen.

We now specify the conditional utility function in such a way that we can account for the influence of income on choice. That is, the utility function must allow for a non-constant marginal rate of substitution for consumption. As such, we specify:

$$U_i = \alpha_0 S_i + \alpha_1 C_i + \alpha_2 C_i^2 + \varepsilon_i \qquad i = Pub1, ..., Priv3 \qquad (4)$$

We derive consumption net of schooling expenditures from (7), such that

$$C_i = Y - P_i^* = Y - P_i - wH_i \qquad i = Pub1, ..., Priv3 \qquad (5)$$

where w = opportunity cost of the student's time

H_i = hours of student's work lost due to school attendance

P_i = direct monetary cost of sending the student to school

Substituting (5) to (4) yields:

$$U_i = \alpha_0 S_i + \alpha_1 (Y - P_i - wH_i) + \alpha_2 (Y - P_i - wH_i)^2 + \varepsilon_i \quad i = Pub1, ..., Priv3 \qquad (6)$$

To illustrate the role of prices in this model, we transform the conditional utility function. Since the decision rule is based on the alternative that yields the highest utility, the conditional utility functions can be normalized relative to the non-schooling alternative. Thus, if:

$$U_0 = \alpha_1 Y + \alpha_2 Y^2 + \varepsilon_0 \qquad (7)$$

then subtracting (7) from (6) yields:

$$U_i - U_0 = \alpha_0 S_i - \alpha_1 (P_i + w H_i) - \alpha_2 [2 (P_i + w H_i) Y - P_i + w H_i)^2] + \varepsilon_i - \varepsilon_o \qquad (8)$$

In this specification, income has been differenced out of the consumption term, but not out of the consumption squared term. The linear consumption term corresponds to price, while the consumption squared term includes a price-income interaction term and an income squared term. It is this price-income interaction term which allows price effects to vary by income, thus reflecting differences in price elasticities of demand between the rich and the poor.

We now need to specify the utility derived from human capital, which is captured in the equations as $\alpha_0 S_i$. This utility will be increasing, the greater the quality of schooling obtained. We can think of the overall schooling quality as being influenced by two factors: institutional quality and demographic variables. Therefore, we can re-specify $\alpha_0 S_i$ as:

$$\alpha_0 S_i = \beta_i X_i + \upsilon_i \qquad (9)$$

where X_i = vector of school quality and demographic characteristics

Substituting (9) into the conditional utility function in (6) yields

$$Ui = V_i + \varepsilon_i + \upsilon_i \quad i = pub1,\ldots\ldots, priv3 \tag{10}$$

where $V_i = \beta i X_i + \alpha_1 (Y - Pi - w H_i) + \alpha_2 (Y - Pi - w H_i)^2$ for the schooling option, and

$$U_0 = V_0 + \varepsilon_0 \tag{11}$$

where $V_0 = \alpha_1 Y + \alpha_2 Y^2$ for the no schooling option.

4.2 The Demand Functions and Welfare

As a final step, we need to decide on the functional form that the demand function will take. To allow for correlation across sub-groups of alternatives and non-constant price elasticities, we make use of the nested multinomial logit (NMNL). As specified in Gertler and Glewwe (1990), we assume that the joint distribution of the error terms follow a type B extreme value distribution. That is, the υ_i's imply that the error terms of the schooling alternatives may be correlated with each other, but not with the no-schooling alternative. We can therefore specify the no-schooling demand function, or the probability of not going to school, as:

$$\pi_0 = \frac{\exp(V_0)}{\exp(V_0) + \left[\sum_{k=1}^{i} \exp \pi_0\right]^{\sigma}} \tag{12}$$

Meanwhile, the demand function of the schooling alternative *i* is:

$$\pi_i = (1 - \pi_0) \left[\frac{\exp(V_i/\sigma)}{\sum_{k=1}^{i} \exp(V_k/\sigma)^{\sigma}} \right] \tag{13}$$

where σ is a measure of the similarity of grouped alternatives[26].

After estimating the equation, the compensating variation may then be calculated, through which the following can be derived: a) the arc price elasticities of demand for each alternative[27], broken down by income groups; b) the reduction in enrollments as a result of the price increase; c) the maximum increase in fees that households are willing to pay; and c) the amount of revenues that can be generated from user fees.

4.3 Practical Considerations: Data Set and Variables

Having defined the empirical specification, the next task is to find a data set that would contain the necessary data. Empirical work that has been done on this subject have mainly used household survey data. In the case of the Philippines, the data set that could have been used for such an exercise would have been the Family Income and Expenditure Survey (FIES). Unfortunately, the FIES does not contain most of the relevant data needed for the empirical analysis.

While the FIES includes expenditures on education, these are not classified according to level of education or type of institution. Neither is there any attempt to identify which of the school-aged household members are actually in school. Wages and income data are also aggregated for the entire household, such that it is difficult to construct an age-earnings profile that could be used to measure the opportunity cost of higher education.

If the FIES were to also reflect data on individuals that make up the households, these foregoing issues could be resolved. On the other hand, "rider" surveys to the FIES have been implemented in the past in order to obtain more specific information for policy analysis.

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[26] The value of σ provides us with a specification test and must be between 0 and 1 for the model to be consistent with utility maximization. Otherwise, the data reject the distributional assumptions of the functional form of the utility function. If σ is less than 1, then an increase in one provider's price will cause a greater percentage increase in the other providers' demand than in no schooling. If, on the other hand, σ equals 1, then the no schooling and the providers are viewed as close substitutes for one another (Gertler and Van der Gaag, 1990).

[27] Following Train (1986), Gertler and Van der Gaag (1990) do this through sample enumeration by income groups. The arc price elasticity of demand can be constructed by dividing the average change in the sum of probabilities by the average change in price.

This second option may be more feasible; however, being a household survey, the FIES would still fail to capture information on institutional quality. At best, only three schooling choices will be reflected out of the six identified earlier, i.e., no schooling, public, and private[28]. In such a case, inequities in terms of access to institutions of the same quality would not be captured. Therefore, we would still need to find a data set containing information on school quality that can be combined with the FIES.

4.4 Caveats in Using the Willingness-to-Pay Methodology

While the willingness-to-pay methodology may be helpful as a means of assessing the distributional impact of an increase in user fees, the results derived from it only tell part of the story. First of all, since it is based on a revealed preference framework, it would obviously fail to capture the general equilibrium effects of higher prices. At the core of this criticism is the contention that user fees can have both positive and negative general equilibrium effects which need to be weighed against each other. For instance, greater reliance on fees could free up public resources for basic education. On the other hand, imposing fees at one level of education can have effects on the demand for places elsewhere in the system. Imposing fees at the higher education level could lead some parents to consider it is pointless to send their children to secondary school. The composition of enrollment could also change; girls could be rationed out of the system, as the recent experience in Zambia suggests. When made to choose between who to keep in schools, Kenyan parents were also found to be twice as likely to withdraw their daughters from school than their sons (Booth et al., as cited in Reddy and Vandermoortele, 1996).

Critics would also argue that willingness-to-pay is not the same as ability-to-pay, where the latter is defined by the degree of duress faced by an individual or household in paying for education[29]. Thus, even if individuals are willing to pay for education at higher costs, in reality these costs can be too prohibitive such that the impact of user fees is regressive. In addition, although poor households may be willing to pay higher education costs as a result of user fees, their doing so in reality could mean reductions in the consumption of other basic needs such as health and nutrition.

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[28] The vector of schooling quality characteristics, Xi in equation (13), would consequently be reduced to just demographic characteristics. Younger (1997) argues that this will suffice, the reason being that households with different characteristics tend to evaluate the quality of providers differently.

[29] For cross-section data on 63 countries which show how willingness-to-pay can be different from ability-to-pay, see Colclough (1997).

If such general equilibrium effects are substantial, then imposition of fees could lead to other forms of inequity. All these consequences must be weighed with the predicted benefits of such a policy change, to determine whether the potential gains justify the magnitude of potential losses.

The second shortcoming of the methodology has to do with its inability to capture all the benefits and costs of higher education. Since the framework for welfare analysis is based on household utility, external benefits to society are not captured in the model. On the costs side, it is assumed that the only costs that influence schooling decision are opportunity and monetary costs. In reality, however, there are other costs involved when choosing among alternative providers. These costs arise mainly because education is an investment that is difficult to reverse; that is, it is difficult to substitute one form of instruction for another. As such, there would be costs involved in trying to find an alternative that can provide the same kind of instruction at a price that the household is willing to pay.

4.5 Conclusion

In this chapter, we presented the willingness-to-pay methodology as a possible approach for determining the equity implications of user fees in Philippine tertiary education. While the actual application of the methodology would have been desirable, the lack requisite data unfortunately precludes such an analysis. Changes in the existing household survey are therefore suggested to remedy this situation. Though expensive, such a change can only be beneficial for the kind of work proposed in this and other similar studies.

Although the results of the empirical model can be very powerful in making a case for equity, these results are nonetheless likely to be incomplete. To the extent that there are general equilibrium effects, externalities, and other switching costs involved, these outcomes must also be considered.

These limitations notwithstanding, the results derived from the methodology can still be a useful first step in analyzing equity implications. In the next chapter, we try to do just that by simulating the effects of an increase in fees for a hypothetical public HEI with quantity rationing, using an assumed range of price elasticities of demand.

CHAPTER 5. POLICY SIMULATIONS

The purpose of this chapter is to illustrate how a policy change towards increasing cost-recovery can be potentially regressive. These simulations are meant to indicate the required line of research and how policy discussions can be fed by this type of analysis.

Had data been available for us to estimate the demand equations presented in the previous chapter, conducting policy simulations would have been a more straight-forward task. Without our own empirical estimates, however, we have to assume arc price elasticities of demand that are close to what has been reported in the literature. These are then applied to determine how demand, enrollment, supply and acceptance rates will change as a result of higher fees. To incorporate sensitivity analysis in the simulations, a range of alternative values were assumed for the elasticities. Since most of the numbers used in the simulations had to be assumed, it should be kept in mind that the exercise is not meant to provide orders of magnitude, but to present certain tendencies.

The second purpose of this chapter is to illustrate how a public HEI can use data on arc price elasticities of demand to assess the equity impact of changing their own policies towards greater cost-recovery, and through that better inform the policy debate. Except for the arc price elasticities of demand, all of the other data needed to conduct the policy simulations should be readily available to individual institutions.

The policy scenario presented in the chapter takes the case of a high-quality public HEI that decides to increase tuition fees in order to expand supply, but not to the extent that all who apply will be accepted; that is, we assume that acceptance rates are kept below 100 percent, and that the public HEI will still screen for ability. To this end, the policy scenario attempts to discover two things: a) what would higher fees mean for demand, enrollment, supply, and ultimately equity; and b) what would be the maximum amount of fees that school administrators can charge, so that demand does not fall below the number of school places the school is willing to supply?

This chapter is organized as follows. Section 5.1 defines the basic assumptions, data requirements, and mathematical constructs to be used in running the policy simulations. Sections 5.2 and 5.3 present the simulation results for each of the policy questions presented

above. Section 5.4 concludes by summarizing the implications of the policy simulations and taking note of the limitations of the results.

5.1 Setting Up the Policy Simulations

Our scenario takes the case of a hypothetical, high-quality public HEI that is forced to ration the quantity of school places due to budget constraints. Suppose school administrators are contemplating an increase in fees to supply more school places. What basic assumptions, data requirements, and calculations do they need in order to assess the impact of such a policy change on demand, enrollments, supply, and ultimately, equity?

Basic Assumptions

We begin by making a few fundamental assumptions regarding supply and demand. As far as supply is concerned, we assume that:

a) because tuition fees are fed back into the HEI, the HEI has a supply curve that is upward sloping; thus, with higher fees, enrollment can be expanded;
b) in the initial condition, total spending and enrollment are fixed at the current level because of budget constraints;
c) economies of scale are present in higher education, such that marginal cost will be lower than the average cost; and
d) the average cost in the public HEI remains constant.

As for demand, we assume that other than monetary costs, students incur no other switching costs in moving from one schooling alternative to another; thus, students are free to enter and leave the system as they please.

Data Requirements

Having defined the assumptions, we now need to find the following pieces of information:

a) privately-incurred costs, disaggregated into tuition costs and other private costs;
b) average cost of public HEI (AC);
c) arc price elasticities of demand, disaggregated into poor and non-poor;
d) total enrollment, disaggregated into poor and non-poor; and
e) total effective demand, disaggregated into poor and non-poor.

Fulfilling requirements a) and b) is fairly easy, since we need only to go back to the information reported in Chapter Three. Thus, from Table 3.3, we obtain the following data:

Table 5.1. Privately-Incurred Costs, Initial Condition (in pesos, 1997)

	Amount
Tuition Costs	1,908
Other Privately-Incurred Costs	12,137
Total Privately-Incurred Costs	14,045

Source: Maglen and Manasan, 1998

Meanwhile, from Table 3.2, we know that the average operating cost per student in a public HEI amounts to 24,777 pesos per year. This we take as the average cost of our hypothetical public HEI.

Suppose that school administrators use this information on average cost to determine the appropriate increase in tuition fees. From a theoretical standpoint, we know that it is marginal cost, and not average cost, that should be recovered by an increase in user fees. However, it is unlikely that school administrators will have this data readily available.

Suppose they decide to look at what other studies have found regarding the relationship between average and marginal cost in higher education. Studies of higher education cost functions in the United States and the United Kingdom estimate the ratio of marginal to average costs to be within the range of 50 to 70 percent of average cost (Verry and Davies, 1976, and Brinkman, 1986, as cited in Winkler, 1990). We take the lower bound of this range and assume the upper bound to be slightly higher for developing countries such as the Philippines: say, 75 percent. Thus,

the new tuition fees for our hypothetical HEI would fall between P12,388 and P17,344. Table 5.2 summarizes these information.

Table 5.2. Average Costs and New Tuition Fees (in pesos)

	Amount
Average Cost	24,777
New Tuition Fees	
at Fees= 50% AC	12,388
at Fees= 75% AC	17,344

Source: Average cost data from Maglen and Manasan, 1998. New tuition fees are the author's own estimates.

If we assume that only tuition costs change as a result of the price change, while all other privately-incurred costs remain constant, then:

a) at Fees= 50 percent of AC, total privately-incurred costs would increase to 24,526 pesos, an increase of 75 percent; and
b) at Fees= 75 percent of AC, total privately-incurred costs would increase to 29,481, an increase of 110 percent.

The arc price elasticities of demand assumed for these policy simulations are as follows[30]:

[30] The only study which reports price elasticities of demand for higher education is that of Younger (1997). Drawing from the work of Gertler and van der Gaag (1990) on willingness-to-pay, Younger defines a demand function which allows the approximation of discrete choices between no service, a private service and a public service, estimated through NMNL. The demand function is specified as an additive function of income (consumption) net of the cost of the service and the quality of the service received (as proxied by public vs. private). That is: $U_j = a * (Y-P_j) + H_j(X) + e_j$,

where: Uj is the indirect utility;
Y is permanent household income (proxied by consumption expenditures);
Pj is the price of option j;
Hj is the quality of option j, assumed to be a linear function of household characteristics X; and
ej is the error which may be correlated across types of options.

Using household survey data from Ecuador, Younger reports an aggregate price elasticity of -3.160 for higher education. Disaggregated by quintile, the price elasticities ranged from a high of -7.2 for the poorest quintile, to a high of -2.7 for the richest quintile. However, these price elasticities were calculated at price equals average cost. At marginal cost, it is possible that the arc price elasticities of demand will be much lower.

For our simulations, we take a more conservative range of price elasticities of demand. As will become evident in the next sections, even at these conservative values, the demand response to marginal cost-pricing is already substantially regressive.

Table 5.3. Assumed Arc Price Elasticities of Demand

Fee	Arc Price Elasticity of Demand	
	Poor	Non-Poor
12,388	-2.0	-1.0
	-2.5	-1.5
	-3.0	-2.0
17,344	-2.5	-1.5
	-3.0	-2.0
	-3.5	-2.5

Notice that we take a range of elasticities in order to make the results amenable to sensitivity analysis. Moreover, to be consistent with results reported in the willingness-to-pay literature, these assumed arc price elasticities increase with price when income is held constant, and decrease with income, when price is held constant[31].

Recall that in equation (5) of Chapter 4, the price variable Pi includes all the direct monetary costs of sending a child to school, i.e., tuition costs plus all other privately-incurred costs. Thus, these assumed arc price elasticities of demand refer to the change in demand due to a change in total privately-incurred costs.

We come to the last two data requirements for the policy simulation: enrollments and effective demand, disaggregated into poor and non-poor. Total enrollments in the initial situation would depend on the total budget available to the HEI, which we assume to be 123.885 M pesos. In the initial situation, therefore, total enrollments would be 5,000 students. We now try to disaggregate this total into poor and non-poor. From Chapter 3, we know that in a high-quality HEI, majority of the students would be non-poor. Let us assume that the enrollment composition in this segment follows the distribution of access to higher education reported in the 1999 Annual Poverty

[31] Admittedly, this distinction between poor and non-poor is a somewhat crude one; a better alternative would be to disaggregate the population into quintiles. In that way, the elasticities would change more gradually. However, for purposes of illustration, the former distinction should suffice, since the tendency toward greater inequity would still be apparent.

Indicators Survey. Thus, we assume enrollment in a high-quality public HEI to be distributed as follows[32]:

Table 5.4. Enrollment Distribution, High-Quality Public HEI

	Percentage Share	Enrollments
Poor	11%	550
Non-poor	89%	4450
Total	100%	5000

Using total enrollment data, we can derive information on effective demand. In a high-quality public HEI, where the quantity of school places is rationed, we would expect effective demand to be several times greater than enrollment. Let us assume that the acceptance rate to our hypothetical high-quality public HEI is 15 percent [33]. Effective demand would thus be 33,334 students, distributed as follows:

Table 5.5. Demand Distribution, High-Quality Public HEI

	Percentage Share	Enrollments
Poor	35%[34]	11,667
Non-poor	65%	21,667
Total	100%	33,334

Calculations

With all the data requirements fulfilled, we now describe the key calculations needed for the simulations. The first thing we want to find out is how effective demand changes after a price increase. We know that the arc price elasticity of demand, Ep, is computed as:

$$Ep = \frac{D_{2i} - D_{1i}}{P_2 - P_1} * \frac{(P_1+P_2)/2}{(D_{1i}+D_{2i})/2} \qquad (1)$$

[32] The APIS results were referred to in footnote 1. It is possible that the poor's share is slightly higher — they constitute about 20 percent of the student population in UP (PDI, June 9, 1999).

[33] Taken as a rough average of the acceptance rates in three public HEIs: UP (5 percent), Central Luzon State University (25 percent), University of Southeastern Philippines (10 percent).

[34] In 1994, 35 percent of households were considered poor.

where the subscripts 1 and 2 refer to the old and new levels of effective demand and prices, and i = poor, non-poor.

From this equation, we derive $D_{2i} = D_{1i}\frac{[(Ep^*a/b) + 1]}{1 - (Ep^*a/b)}$ (2)

where $a = P_2 - P_1$, and $b = P_1 + P_2$.

D_{2i} is the new effective demand following a price change. Note that price P refers to total privately-incurred cost, and not just tuition cost. We can use the same formula to get the new number of enrollments, E_{2i}. Calculating the number of drop-outs would simply involve subtracting E_{2i} from enrollments in the initial condition.

We now turn our attention to the supply curve. The supply curve can be written as:

$$\text{Supply} = \frac{\text{Total Budget of HEI}}{\text{Average Cost - Fees}} \quad (4)$$

From this equation, the supply of places at various levels of fees can easily be computed. It is also possible to derive the supply curve when some of the revenue generated is used to fund exemption schemes or scholarships for the poor. In such a case, the supply curve would be:

$$\text{Supply} = \frac{\text{Total Budget of HEI - (Drop-outs*Fee increase)}}{\text{Average Cost - Fees}} \quad (5)$$

5.2 Change in Demand, Enrollment, Supply and Acceptance Rates

The policy simulation involves estimating changes in demand, enrollment, supply and acceptance rates under the two price scenarios described in the previous section. Table 5.6 summarizes the results.

Let us look at what happens to demand. Since we assumed price elasticities of demand that were no less than one[35], it is not surprising that at the hypothetical level of fees, the results would show significant reductions in demand and enrollment for the poor and non-poor alike. Moreover, since we assumed that the poor's price elasticities of demand were greater than the non-poor's, neither is it surprising that in each and every instance, the decrease in demand and enrollment among the poor prove to be greater.

Taken in isolation, the decrease in the poor's effective demand need not automatically result in an enrollment distribution that is more regressive. Although effective demand may decrease, the increase in the number of school places means that a greater number of applicants can now be enrolled in the institution. By implication, some of the poor students who were formerly rationed out should now be able to gain access.

So long as exemption schemes are provided to the poor who are already in school, and so long as some of the poor who are still willing to pay the higher fees manage to get accepted, then it is possible for higher fees to have a neutral effect on equity (i.e., to the extent that the enrollment distribution remains the same after the price change). In such a case, what the school authorities should watch out for is a regressive change in the enrollment distribution. One way to do this would be to include equity as part of the school's admissions criteria. The school authorities may even want to go so far as to make sure that majority of the poor who are willing to pay will be given a place in the institution.

Given these, the key information we should look out for in this simulation is the level of fees at which the poor's effective demand drops to zero. From the results, we can see that this happens where the fee is 17,344 pesos and the poor's assumed price elasticities of demand is greater than -3. At that point, only the non-poor who are still willing to pay the higher fees are able to secure a place in the institution. Therefore, unless exemption schemes are provided for the poor who are currently enrolled, at that level of fees the public HEI would be exclusively for the non-poor.

[35] At an arc price elasticity of demand that is less than one, we would expect that the decline in demand would not be as dramatic.

This, however, is an unlikely scenario: at Fee= 17,344 pesos, total effective demand is far less than what could be supplied at that price, as evidenced by acceptance rates that are greater than 100 percent. Therefore, it would not be rational for school administrators to hike fees up to this amount. For the same reason, they would be unwilling to charge a fee of 12,388 pesos when the arc price elasticities of demand are equal to –3 and –2 for the poor and the non-poor, respectively. Thus, it would seem that the only feasible levels of fees are 12,388 pesos and less, when the arc price elasticities of demand are at most –2.5 for the poor and –1.5 for the non-poor.

Given these considerations, school administrators must somehow find the maximum level of fees that potential students are willing to pay at different price elasticities of demand. In this way, they can ensure that demand does not fall below the number of school places the school is willing to supply.

5.3 Calculating Willingness-to-Pay

Before we can calculate the maximum level of fees that can be charged, we must first speculate about how many applicants the public HEI is willing to accept. Since we are dealing with a high-quality public HEI, it is unlikely that they would increase the number of school places to the extent of switching to a policy of open enrollment. Quality education is partly a function of student ability; thus, we should assume that school administrators would still want to select students on the basis of academic merit.

Suppose that school administrators take note of the results of the first simulation, and decide that they would be willing to expand supply such that they keep their acceptance rate between 60-65 percent[36]. Table 5.7 reflects the optimal price they can charge at different assumed price elasticities of demand.

From the results, we can see that up to the point where the fee is equal to 8,900 pesos, there is still a potential for the poor to gain from the increase in school places. Again, this potential is greatest when exemption schemes are provided to the poor who are in school, and when equity is given weight in the admissions requirements.

[36] This acceptance rate is achieved at Fee = 12,388 pesos and arc price elasticities of demand equal to –2 and –1 for the poor and non-poor, respectively.

At the highest value of assumed elasticities, however, (where Ep = -3.5 for the poor and –2.5 for the non-poor), the poor's effective demand for education drops to zero, even if at that level total private costs only increase by 21 percent compared to the initial condition. At this level of fees, only the non-poor would bother to sit for the admissions tests and be accepted to the university. Even if exemption schemes were provided to currently enrolled poor students, this would still imply that inequities in enrollment distribution become worse; whereas the poor accounted for 11 percent of enrolled students in the initial situation, at this level of fees, their share would drop to 8.6 percent.

What do these results tell us? They tell us that there is a very real trade-off between efficiency and equity, as we had discussed in Chapter 2. Even if the increase in prices result in a situation where aggregate welfare is improved, if this improvement is made up exclusively of the non-poor's welfare, then clearly the outcome is unacceptable from the point of view of equity.

But there are other critical issues which are not captured by these results. For one thing, we do not know what happens to the poor who stop demanding higher education because of higher fees: do they switch to lower-quality alternatives, or do they decide not to go to school altogether? For another thing, if school administrators decide to accept students primarily on the basis of ability, there remains the possibility that poor students will continue to be rationed out of the system, despite their willingness to pay for higher fees.

Table 5.6. Change in Demand, Enrollment, Supply and Acceptance Rates as a Result of Higher Fees

Fee	Elasticities		Effective Demand			Potential Drop-Outs Among Current Enrollees		Supply/Enrollments without Exemption Scheme for the Poor		Supply/Enrollments with Exemption Scheme for the Poor	
	Poor	Non-Poor	Poor	Non-Poor	Total	Poor	Non-Poor	# of Places	Acceptance Rate /1	# of Places	Acceptance Rate /1
1,908	-	-	11,667	21,667	33,334	-	-	5,000	15%	-	-
12,388	-2	-1	3,451	12,408	15,859	387	1,902	10,000	63%	9,672	61%
	-2.5	-1.5	2,228	9,119	11,347	445	2,577	10,000	88%	9,623	85%
	-3	-2	1,188	6,409	7,597	494	3,134	10,000	132%	9,582	126%
17,344	-2.5	-1.5	701	6,620	7,321	517	3,090	16,667	228%	15,938	218%
	-3	-2	-	3,685	3,685	550	3,693	16,667	452%	15,891	431%
	-3.5	-2.5	-	1,302	1,302	550	4,183	16,667	1280%	15,891	1220%

/1 An acceptance rate greater than 100 percent implies that demand is less that what could be supplied at the given level of fees.

Source: Author's own estimates.

Table 5.7. Optimal Level of Fees

Fee	Elasticities		Effective Demand			Potential Drop-Outs Among Current Enrollees		Supply/Enrollments without Exemption Scheme for the Poor		Supply/Enrollments with Exemption Scheme for the Poor	
	Poor	Non-Poor	Poor	Non-Poor	Total	Poor	Non-Poor	# of Places	Acceptance Rate	# of Places	Acceptance Rate
12,388	-2	-1	3,451	12,408	15,860	387	1,902	10,000	63%	9,672	61%
10,350	-2.5	-1.5	3,123	10,513	13,635	403	2,291	8,587	63%	8,294	61%
8,900	-3	-2	2,936	9,317	12,252	412	2,537	7,803	64%	7,531	61%
6,400	-3.5	-2.5	-	10,560	10,560	550	2,281	6,741	64%	6,428	61%

Source: Author's own estimates.

5.4 Conclusion

The results of this exercise underscore the importance of accounting for the demand response of households to an increase in fees. By assuming a range of arc price elasticities of demand, we were able to illustrate that the equity impact of a price change depends primarily on the price sensitivity of the poor versus the non-poor. Policy-makers must be sensitive to these differences; otherwise, it will be difficult for them to anticipate the consequences and adequately prepare for them.

Interestingly enough, the results tell us that an increase in user fees need not lead to a decrease in enrollment among the poor. This is provided that some of the revenues generated are diverted to exemption schemes, and that some of those who were formerly rationed out can somehow gain access to the increase in school places. However, if the increase in user fees goes beyond the amount that the poor are willing to pay, then the poor's demand for higher education could fall to zero; in such a case, an increase in fees will always be regressive[37], even with exemption schemes for those who are already in school.

The simulations do not tell us that cost-recovery should be eschewed entirely in order to protect equity. What they do tell us is that the increase should not be so excessive as to discourage the poor's demand altogether. It also tells us that levying a fixed fee on poor and non-poor alike could lead to a situation where only the non-poor will demand education. In such a case, there may still be room for cost-recovery, but this would probably best be done through differential pricing.

Although the simulations provide a powerful illustration of how an increase in higher education fees can be regressive, these results are nonetheless incomplete. They cannot predict whether poor students who move out of the public segment will shift to private providers, or choose the no schooling alternative. This aspect can only be accounted for by estimating the demand functions described in the previous chapter. Neither can they fully account for the equity impact of the screening criteria school authorities will choose to adopt after an increase in fees. Ultimately, the equity impact of an increase in user fees will depend on the demand response of the poor, and the readiness of school authorities to include equity as part of their objectives.

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[37] Provided, of course, that some of the non-poor continue to demand education.

It should be noted that the results of the policy simulations were derived under certain strict assumptions. Two of the crucial assumptions that need to be looked at more closely is that of an upward sloping demand curve and the absence of switching costs. How easy would it be in reality for school authorities to expand supply? If there are rigidities in the supply of inputs, these must somehow be accounted for. The absence of switching costs was tackled in the previous chapter, and need not be mentioned here.

In future research, it may also be helpful to do the same simulations for a low-quality public HEI where: a) the poor account for a bigger share of demand and enrollments; b) where quality is rationed instead of quantity and c) excess capacity exists.

Finally, it would be desirable to verify these results once the appropriate data set becomes available and the empirical model proposed in Chapter 4 is estimated for the Philippines.

[37] Provided, of course, that some of the non-poor continue to demand education.

CHAPTER 6. CONCLUSIONS

Despite having given rise to much controversy, the policy of increasing user fees in higher education has become an integral part of Philippine government's efforts to rationalize its involvement in education finance. Ostensibly, this policy shift is meant to lead to improvements in both efficiency and equity; however, the findings of this paper suggest that there is a very real trade-off between efficiency and equity when the reliance on user fees is brought too far. Although these findings are by no means complete or decisive, they do raise very critical issues that behoove government to think long and hard before pursuing such a policy change.

6.1 Summary of the Main Findings

Our aim in this paper was to bring to light conceptual and empirical issues surrounding the equity impact of user fees in public HEIs. The main findings of the paper may be summarized as follows:

While theory suggests that imposing higher user fees can lead to improvements inefficiency, theory also suggests that such an improvement can come at the cost of greater inequity. The magnitude of this trade-off depends on the presence of suitable alternatives in the higher education market, the demand response of households to an increase in fees, and the households' willingness-to-pay for higher education.

Although the diversity of the Philippine higher education market lends the system with great flexibility, this heterogeneity has its downside as well: differences in content, quality, and rationing mechanisms have led to a pattern of utilization where the non-poor benefit most from the best public and private HEIs, while the poor end up being rationed into the cheaper, lesser quality alternatives. Thus, an increase in fees in public HEIs could induce some poor students to shift to lower-quality private alternatives or to no utilization at all.

The willingness-to-pay methodology can be a useful first step to measure this demand response of households to higher fees. Unfortunately, the lack of requisite data precluded such an analysis in

this paper. Changes in the existing household survey are therefore recommended to remedy this situation.

It should be kept in mind, however, that the willingness-to-pay methodology is subject to certain limitations and only tells part of the story. Since the methodology is confined to partial equilibrium and is based on utility consumption theory, by construction it will fail to capture general equilibrium effects or benefits that spill over to society as a whole. Neither does it fully capture the costs involved in switching between alternative providers.

The results of the policy simulations confirm the potential for an increase in user fees to be regressive so long as the increase in user fees exceed the amount that the poor are willing to pay. More crucially, if the poor's demand for higher education falls to zero, an increase in fees will always be regressive,[38] even with exemption schemes for those who are already in school. However, since the simulations had to be carried out using assumed arc price elasticities of demand, these results need to be verified once the empirical model proposed in this paper is estimated for the Philippines.

6.2 Policy Recommendations

In view of the paper's findings, policymakers may want to consider the following recommendations:

First of all, the findings imply the need for a more rigorous analysis of the implications of user fees on equity, taking into consideration the conceptual and empirical issues raised in this paper. To date, attempts to address the question of equity in education have come up with evidence that are anecdotal, at best. Admittedly this has been due to the paucity of meaningful data, a lack that has hampered this research as well. However, this does not excuse government from being as thorough as it should be before embarking on such a significant shift in policy. If anything, it implores government to be more painstaking in gathering the data required for it to be able to make informed decisions. Without this kind of analysis, it will be difficult for government to fully anticipate the consequences of such a policy change and adequately prepare for them.

Second of all, equity considerations imply a need to explore other avenues for increasing higher education resources and efficiency before resorting to greater cost-recovery. As the findings of

Chapter 2 suggest, the problem seems to be not so much that funds have been insufficient, but that they have been utilized in a questionable way. In this light, it seems a prerequisite that government first exhaust all possible means of getting the most out of what it currently has. Government has already taken a step in this direction by declaring a moratorium on the needless creation of state-supported institutions. But there still remains the question of what to do with the ones that are already existing.

Despite underscoring the potential for user fees to harm equity, this paper does not suggest that the move towards greater cost-recovery be abandoned altogether. There is no doubt that excessive subsidization has been regressive, at least in the high-quality segment of the public sector. Where majority of the students come from the non-poor, there is considerable room for increasing cost-recovery. But just as government should avoid blanket subsidies, so too should it avoid blanket fees that ignore willingness-to-pay. This implies a look at the feasibility of adopting differential pricing schemes similar to that currently being implemented in the University of the Philippines. To this end, it would be useful to document UP's experience and determine the scheme's replicability.

While greater cost-recovery may be warranted in the case of high-quality public HEIs, a similar policy in low-quality public HEIs is likely to harm the poor who make up the majority in these schools. In this respect, government has to make a choice: should it continue funding these state institutions, or should the funds be re-channeled to demand-side exemption mechanisms which the poor can use to enroll in a private HEI of their choice?

Some of the policy proposals that have come out in this regard lean towards the second option: demand-side financing mechanisms such as scholarships and vouchers. But even these mechanisms are open to debate, since studies would show that choice, like user fees, could lead to a distribution of education that is regressive (Elchanan, 1997, Tomlinson, 1997, Tooly, 1997).

Our discussion in Chapter 2 tend to support these findings; for a poor student rationed out of the public segment, choosing a high-quality HEI is clearly not an option due to the high privately-incurred costs associated with these HEIs. Even if government were capable of offering scholarships or vouchers to offset these costs, there is still the reality of admissions tests to contend with. Thus, these students

[38] As long as the non-poor continue to demand public higher education.

are likely to end up in the lower-quality segment of the private market. If government decides on this tack, it must somehow ensure that these private HEIs upgrade the quality of instruction. One way would be to encourage the current system of voluntary accreditation by providing scholarships and vouchers that can only be used in accredited institutions.

6.3 Suggestions for Further Research

Part of the intent of this research paper was to provide a starting point for further research on this topic. Having clarified the conceptual issues and presented an empirical methodology, it is hoped that the exploratory results of this paper would be verified through the actual estimation of the proposed empirical model and through further policy simulations. It may also be instructive to incorporate the private sector's response to an increase in fees, an aspect which was not explored in this paper.

Given the limitations of the willingness-to-pay methodology, it may also be helpful to look for ways to improve the model, or to find alternative empirical methodologies amenable to this type of analysis. In particular, it would be desirable to try to account for the general equilibrium effects of an increase in fees, and to find a methodology that comes closest to incorporating all the benefits and costs associated with higher education.

Finally, to the extent that demand-side financing mechanisms are being put forward as complements to user fees, or alternatives to direct government provision, the desirability and desirability of these options deserve closer scrutiny.

APPENDIX A: A GENERAL FRAMEWORK FOR WELFARE ANALYSIS

In choosing the utility-maximizing bundle of goods and services, three things are factored in by the household, namely: a) the household's budget constraint, or income; b) the relative prices of goods and services; and c) the household's preferences. Although the income and price variables may be easy to obtain, the household's preferences must somehow be revealed by specifying a demand function. From this demand function, it would then be possible to infer how the aggregate and relative welfare of households change as a result of a change in prices*.

We can present this approach more formally as follows. Let us define a set of variables X, P, and Y, where:

X is a vector of K goods and services: $X = (X_1, X_2, ..., X_k)$;
P is a vector of their prices: $P = (P_1, P_2, ..., P_k)$; and
Y is the household's total disposable income: $Y = (Y)$.

We now specify the utility-maximizing condition defined over the bundle of goods X, given prices P and household disposable income Y. That is:

$$\max_{X} U = U(X_1, X_2, ..., X_k) \qquad (1)$$
$$\text{subject to } Y = \sum_{i=1}^{k} P_i X_i$$

From equation (1), we can derive a set of demand equations:

$$X_1^0 = X_1 (Y, P_1, P_2, ..., P_k)$$
$$X_i^0 = X_i (Y, P_1, P_2, ..., P_k) \qquad (2)$$
$$X_k^0 = X_k (Y, P_1, P_2, ..., P_k)$$

where X_i^0 denotes the optimal quantity of consumption item i.

Substituting (2) into (1) yields the indirect utility function:

$$U^0 = U^0 \ (Y, P_1, P_2, \ldots, P_k) \qquad (3)$$

which reflects the maximum welfare level, U^0, that can be reached when income is Y and prices are P.

From equation (3), we can derive a cost function that will allow us to analyze changes in welfare. This is done by taking the inverse of (3), as follows:

$$Y = C \ (U^0, P_1, P_2, \ldots, P_k) \qquad (4)$$

Equation (4) shows how much income Y is needed to obtain a given welfare level U^0, when prices are P. Using this equation, therefore, it is possible to derive how much income is needed to keep households at the same level of utility given a change in prices. If we assume that the price change involves an increase, then households must be provided with additional income to leave them at the same level of welfare as before. This additional income is the compensating variation.

Applying this general framework, we wish to find out how much additional income should be given to households to compensate them for a welfare loss due to an increase in user fees. If we let

P_f = user fees, and

P_p = sum of all other privately incurred costs, including opportunity costs;

then the total cost of higher education can be defined as:

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* This specification draws from Gertler and Van der Gaag (1990)

$$P_{he} = P_f + P_p \quad (5)$$

From this equation, it will be possible to obtain price elasticities for higher education when P_f changes. Together with equation (4), it will also be possible to estimate the amount needed to compensate the family for the welfare loss. The compensating variation (CV) derived from this equation can then be treated as the household's willingness-to-pay for a price change, and forms the basis for estimating the equity, welfare and revenue effects of an increase in user fees.

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