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Study Report # 3

**Estimating Willingness
to Pay for Health Care
in Ethiopia: Research
Results and Analysis**

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Prepared by:

Health Care Financing Secretariat,
Ministry of Health



Federal Democratic Republic of Ethiopia,
Ministry of Health



In collaboration with:
John Snow, Inc.



Abt Associates Inc.



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Essential Services for Health in Ethiopia

USAID/Ethiopia's primary health sector intervention, Essential Services for Health in Ethiopia-I (ESHE-I) was launched in 1995. It represents a collaborative effort between USAID and the Government of the Federal Democratic Republic of Ethiopia (GFDRE) to (1) increase the use of integrated primary and preventive health care (PPHC) services in Ethiopia; and (2) contribute to the achievement of national sectoral goals, as articulated in the GFDRE's Health Sector Development Program (HSDP).

Mission

The goal of ESHE-I is to create sustainable improvements in the overall health status of Ethiopians by slowing the rate of population growth and by improving the population's access to, and the quality and utilization of health care services. ESHE-I is comprised of policy, budgetary, and institutional reforms; family planning; STI/HIV/AIDS prevention and mitigation; and PPHC service delivery activities in the Southern Nations, Nationalities and Peoples Regional (SNNPR) State, each with the overall aim of strengthening the health service delivery system and thereby creating a demand in the utilization of PPHC services. ESHE-I is structured into four Intermediate Results (IR) focusing on (1) increasing resources to the sector, (2) improving access and utilization of family planning services, (3) HIV/AIDS prevention and control; and (4) strengthened health systems in the SNNPR.

Intermediate result (IR) 1, "Increased resources dedicated to the health sector, particularly PPHC", is a key component that USAID aims to support the implementation of national policies which will increase resources to the sector, the implementation of a Health Care Financing (HCF) Strategy, and promotion of private investment in health care delivery. Also, support for increasing the MOH and RHB capacity for sectoral planning and budget development, relative to the Health Sector Development Program (HSDP). These objectives are meant to be achieved through:

- 1.1 Increased government budgetary allocations to health care, particularly PPHC;
- 1.2 Increased share of public health expenditure covered through cost recovery;
- 1.3 Increased government capacity at central and regional levels for resource; and
- 1.4 Increased private sector investment in health care delivery.

John Snow Inc. (JSI) is the prime contractor for ESHE-I under the USAID/GFDRE bilateral agreement. Abt Associates Inc. is the sub contractor supporting the "health care finance reform" activities constituted under IR1 of ESHE-I. To inform the reform process the HCF Secretariat of the Federal Ministry of Health and the Health Finance team have conducted a series of studies, study tours, analysis and interpretation of the information generated on different aspects of health care financing in Ethiopia. This report is part of a series studies and reports, with the aim of contributing data for policy development and implementation of the HCF strategy.

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For additional copies of this report, contact the HCF Secretariat & ESHE/JSI Health Finance Team at eshehcf@telecom.net.et

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Acronyms

DHS	Demographic and Health Survey
EIC	Ethiopian Insurance Corporation
ESHE	Essential Services for Health in Ethiopia
EY	Ethiopian Year
JSI	John Snow Incorporated
MOH	Ministry of Health
NGOs	Non Governmental Organizations
OPD	Outpatient Department
RHB	Regional Health Bureau
SNNPR	Southern Nations' & Nationalities', & Peoples' Region
USAID	United States Agency for International Development

Executive Summary

Measuring the willingness and ability of consumers to pay for medical care has become important because of the interest among governments and NGOs in increasing their reliance on user fees to finance health service delivery. Much of the interest is based on a practical need for more revenue—as traditional (budgetary) sources of finance are failing to keep pace with rising costs and utilization. But, as policymakers look to increases in user fees to help them raise that needed revenue, and to direct any net revenue gains toward specific policy objectives, there is a critical need to develop some reasonable basis for predicting what the impacts of doing so are likely to be. This research was designed to provide that reasonable basis and to then develop some predictions about likely impacts.

Raising user fees, in either government or nongovernmental health facilities, of course, may not necessarily lead to a net increase in revenues, and may, in fact, undermine other important objectives of health services delivery. But because increases in user fees may need to be preceded and/or accompanied by complementary changes in other key policy variables, success in realizing net benefits from higher user fees may be contingent upon success in designing and, especially, effectively implementing a number of complementary policies only indirectly (but critically) related to financing issues.

Common sense tells us, and research has shown, that the most important of these complementary policy variables is the quality of the services offered, particularly the quality as perceived by patients. It is because this quality dimension is likely to be so important in determining willingness to pay that it is an important subject for research. Additionally, for governments, policies on retention of fees by the facility and on fee waivers for the poor are also very important in determining how adjustments in user fees may be made to translate into higher net revenues, as well as to advance the achievement of other important public health goals.

Ethiopia has long had a national system of nominal fees for services provided at government health facilities. But there have been high rates of exemption and low rates of collection. Moreover, the user fee schedules have not been revised in government facilities since they were first instituted almost 50 years ago. Because of steady increases in input prices (while fees remained unchanged), the relative importance of fee revenue has steadily declined. While fees accounted for about 16 percent of recurrent public health expenditure in 1986, they accounted for only 6 percent in 1995/6. Over this same period, too, Ethiopians' ability to pay fees has declined as average income has declined, and the capacity of the government to fund needed drugs and supplies has also declined. The consequences are that the vast majority of patients visiting government facilities pay nothing, while the government must cover all but a fraction of the costs of providing the services that are available. While the law was revised several years ago to allow the private sector to expand, the size and importance of private medical care is still very minimal. Coverage by formal health insurance plans is also quite limited.

The Ethiopian government has recently adopted a health care financing strategy (the strategy) that, among other policy reforms, calls for increased cost recovery in government-sponsored health services and increased reliance on the private sector including NGOs.

In order to assist the government in implementing the Strategy and to estimate its potential impacts, the Health Care Financing Secretariat of the Ministry of Health commissioned this study, which was funded by USAID through the ESHE Project and Pathfinder International. It was designed to provide basic information on the determinants of willingness and ability of Ethiopian communities to pay for improved health services in the country. The central thrust of this study was to try to measure the relative quantitative importance of major determinants of demand and supply—price and quality principal among them—and to recommend to policymakers how the health care financing strategy might best be implemented in order to advance its health policy goals.

The study was comprised of three components: a household survey, a facility and patient (exit) survey, and the convening of focus groups. The household survey canvassed 13,932 individuals living in 2,473 households. About 10% of the individuals surveyed reported an illness or injury in the two months prior to the August, 2000, interview. Of those reporting an illness, 84% of them sought formal treatment (the other 16% sought informal treatment or treated themselves). Of those seeking formal treatment, 76% went to a government facility, 9% went to a facility operated by a nongovernmental organization (NGO), and 16% visited a private for-profit provider. Only 1% of those surveyed had been hospitalized in the previous twelve months.

The patient survey was administered to a total of 2,213 patients as they exited from the 112 treatment locations surveyed. About 32% of respondents were interviewed at government health centers, while respondents visiting government health stations and hospital outpatient departments constituted 9% and 22%, respectively. The rest were patients visiting private for profit (24%) and NGO (12%) institutions.

Three focus groups in Addis Ababa and three focus groups in Dire Dawa were conducted. A total of 27 focus groups were conducted in the other regions, with at least one focus group conducted for about every three million population. This resulted in a total of 33 focus groups. As part of the present study, there was also an interest by Pathfinder International—the principal source of funding for the study—in assessing the prospects of sustainability of the provision of reproductive health services in a group of missionary facilities that are concentrated in the Southern Nations, Nationalities and Peoples Region (SNNPR). For this reason, it was necessary to over-sample study subjects in this particular region where eight focus group discussions were conducted.¹

The results of the three study components all supported a conclusion that perceived quality was a very important determinant both of patients' provider choices and of their willingness to pay

¹ The supplemental households and patients sampled in the two surveys were removed (randomly) before the analyses of the results were conducted, as reported in this report. For a report of the results of the study focusing specifically on the SNNPR, see HCFS/MOH, "Estimating the Willingness to Pay for Medical Care in the SNNP Region of Ethiopia: Research Results and Analysis," Addis Ababa, Health Care Financing Secretariat/ESHE Project, Ministry of Health, forthcoming.

for services and drugs. Respondents were more dissatisfied with government facilities than with private providers. Based on their last encounter with health care facilities, households considered the quality of service provision in public facilities relatively poor (with roughly 30% considering it below average, compared to only 17% for NGO facilities and 13% for private facilities). There was also indication that satisfaction with service delivery at public facilities becomes worse as one goes higher up in the service hierarchy. For instance, about 36% of households perceived the quality of service delivery at clinics to be below average while the corresponding figures for health center and hospital outpatient departments were close to 47%.

The exit survey confirmed this relative ranking as between government and private facilities. It also showed that patients will bypass closer facilities in order to reach a facility perceived to offer more effective care. Of all respondents in the exit interviews, 53% had bypassed a facility closer to their home, and, of those, 52% reported that it was a government facility. The most important reason mentioned (in 40% of all cases) for visiting the facilities visited was the perceived quality of the particular provider. Other reasons included price (16% of all cases) and waiting time (8% of cases).

Quality of care in terms of availability of skilled staff and of drugs was found to be a major factor in people's choices of provider. The evidence indicates, however, that uneven quality in these dimensions, particularly at government facilities, makes other factors also quite important—particularly waiting time. The average travel time reported in the household survey, for the most recent visit, was almost three hours. Waiting time (between arrival and being seen) was also quite high, averaging 7 hours at government hospital outpatient departments, 6.2 at NGO facilities, and 2.7 at other private facilities. Focus group results revealed that reducing waiting times and increasing the consistency in drug availability were the two most important areas for quality improvements respondents thought the government should emphasize in its facilities.

The cost of medical care was the second most important determinant of provider choice, and there were complaints registered by respondents about the high prices charged by private for-profit medical practitioners. However, it was clear, particularly from the household survey, that patients do pay considerable amounts for medical care, and are willing to pay even higher amounts than they now do—if they could obtain higher quality of care in return. The mean payment for a visit (by paying household respondents) was Birr 3.4 in government clinics and health centers, and Birr 4 in government hospital outpatient departments. If waiting time could be reduced by half, patients reported a mean willingness to pay (WTP) twice as much (Birr 8) at health centers and more (Birr 10) at government OPDs. For consistent availability of drugs, respondents reported that they would pay roughly double what they had actually paid (in their most recent visit) for drugs—if they could be assured of getting the drugs they needed when they needed them. The mean WTP for consistent drug availability was about Birr 26 at government clinics and health centers (where mean payments were Birr 13) and the mean WTP for consistent drug availability at government OPDs was Birr 41 (where mean payments were Birr 19).

The results of the focus groups generated much more modest WTP. The most common response among lower income groups (for the whole package of quality improvements, from reduced waiting times to consistent availability of drugs) was Birr 2 to Birr 3, while for higher income

groups it was Birr 5 to Birr 10. In general, respondents reported an understanding of the need for fees and expressed a willingness to pay higher fees—as long as they were getting improved services, tests, and drugs as needed in return.

The survey data on WTP was used to calculate the price elasticity of demand for investigations and for drugs, with price measured as the WTP reported by respondents. For investigations, the average price elasticity was calculated at -0.48 , and for drugs the average price elasticity was measured at -0.82 . Using these two measures of patients' price responsiveness, it was possible to illustrate—through estimation of four scenarios of alternative implementation regimes—how changes in fee exemption policy, user fees, and quality might affect utilization, and, hence, total revenues from health service fees. One of the four scenarios estimated the results of the behavioral response of patients to such an improvement by using a reasonable assumption about the responsiveness of patients to consistent availability of drugs as was indicated by the WTP research results.

In the first illustrative scenario, the reduction in the proportion of patients entitled to fee exemptions would have a considerable impact on revenues, with only a moderate decline (a 50% reduction in the portion with exemptions would lead to a 17% reduction in use but a 35% increase in fee revenue). A second scenario estimated the response to a 50% increase in fees for tests and drugs, with no change in exemption policy. The result was a dramatic drop in use, but only a minor decrease in total revenues. In a third scenario, in which drugs were made consistently available (with no change in exemption policy), that method of improving quality seemed to hold the promise that use, and, hence, revenues would increase rather substantially, even without raising fees. If then fees are increased by 50% (again without changing exemption policy), utilization would decline, but total revenues would remain roughly the same as for the scenario that only improved quality (and did not increase fees).

Since there would be considerable costs associated with the increased utilization under both these latter scenarios, the net negative impact on the budget would be less under the fee increase scenario than under a quality improvement only. The further policy change of fee retention by facilities would improve the collection rate by some unknown amount, and may also have an indirect positive impact on quality.

These illustrative analyses show how the study has provided valuable data and evidence for policymakers to use in pursuing the implementation of the health care financing strategy. As the process goes forward at the regional level, continuation of the types of analysis illustrated here, using the data from the study, will help Regional Health Bureaus to understand the likely impact of alternative courses of action.

1 Introduction

1.1 Health Financing and the Role of User Fees

Measuring the willingness and ability² of consumers to pay for medical care has become important because of the interest among governments and NGOs in increasing their reliance on user fees to finance health service delivery. Whatever one might think of the theoretical arguments in favor of this privatizing of health finance, there is no denying that much of the interest is based on a practical need for more revenue—as traditional sources of finance are failing to keep pace with rising costs and utilization. As policymakers look to increases in user fees to help them raise that needed revenue, and to direct any net revenue gains toward specific policy objectives, there is a critical need to develop some reasonable basis for predicting what the impacts of doing so—to different levels, to different services, at different facilities, under different circumstances—are likely to be. This research was designed to provide that reasonable basis and to then develop some predictions about likely impacts.

Raising user fees, in either government or nongovernmental health facilities, of course, may not necessarily lead to a net increase in revenues, and may, in fact, undermine other important objectives of health services delivery. Moreover, it may be that, in order to maximize any potential net increase in revenues, increases in user fees must necessarily be preceded and/or accompanied by complementary changes in other key policy variables. In other words, it may be that success in realizing net benefits from higher user fees may be contingent upon success in designing and, especially, effectively implementing a number of complementary policies only indirectly (but critically) related to financing issues.

Common sense tells us, and research has shown, that the most important of these complementary policy variables is the patient's perception of quality of the services offered. That is, the expected benefit that patients anticipate from purchasing them must be sufficient to justify the cost—the patient looks for value. It is because this quality dimension is likely to be so important in determining willingness to pay that it is an important focus for research—both for services sponsored by governments and by NGOs.

Additionally, for governments, policies on retention of fees by the facility and on fee waivers for the poor are also very important in determining how adjustments in user fees may be made to translate into higher net revenues, as well as the achievement of other important public health goals.

² This paper generally adopts the analytical framework and perspective of applied microeconomics, in which “ability to pay” is subsumed under the definition of “willingness to pay” (that is, ability is implied by willingness). Thus, whenever willingness to pay is mentioned, the reader may assume that ability to pay is also being referenced. If someone is “willing to pay”, it implies he or she is “able to pay” or at least “able to borrow to pay”. A more detailed explanation is given in Section 2.

1.2 Health Financing in Ethiopia: The Role of User Fees

As with other developing nations, Ethiopia has experienced extreme resource constraints in its efforts to develop its health care system. For much of its recent history, it has depended heavily on government budget allocations for investments in needed health facilities and in medical services, and for the operating costs of delivering care. These capital and operating budgets have been supported by significant doses of international assistance (bilateral and multilateral), especially in the 1960s and 1970s. However, starting with the global recession of the 1980s, the volume of donor resources has substantially decreased. Exacerbating this decline has been the considerable increase in the demand for personal, curative medical care services by the growing population. This has put pressure on the government to improve its existing service delivery efforts even before it has managed to develop a capacity to cover even half of its population with even basic health services. For these and other reasons, the public sector has found it difficult to adequately finance the large volume of health and medical services needed and wanted by the people.

For the fiscal year 1998/99, government health expenditure amounted to about 6.5% of total public expenditure. This aggregate amount averaged out to a public per capita health expenditure of only Birr 13.6 (about US\$ 1.80 per year) (The World Bank, 1999). Private and donor spending supplements the government's budget expenditure. For instance, the private share of total expenditure on health in 2000 was estimated to be about 62% (Valdelin and et al., 2000).

With regard to cost recovery in public facilities, Ethiopia is among those countries with a national system of fees but with minimal enforcement. In addition, the user fee schedules have not been revised in government facilities since they were first instituted almost 50 years ago. Because of steady increases in input prices (while fees remained unchanged), the relative importance of fee revenue has steadily declined. While fees accounted for about 16 percent of recurrent public health expenditure in 1986, they accounted for only 6 percent in 1995/96. Over this same period, however, Ethiopians' ability to pay fees has declined as average income has declined, and the capacity of the government to fund needed drugs and supplies has also declined.

At the same time, there has been an expansion in the number of clinics operated by nongovernmental organizations (NGOs) that charge fees and that are important providers of health care in some parts of Ethiopia. These latter units seemed to have higher cost-recovery rate than public facilities. Out of 31 sampled NGOs, 16% had 91-100% cost recovery capacity, 6% had 81-90% recovery capacity, and 77% had 70% recovery capacity, while average revenue from user fees as a percentage of recurrent hospital expenditure was about 23% in public rural and 32% in public urban hospitals in 1984/85 (PHRD, 1996; MOH, 1998).

The criterion for granting free health care services is mainly based on the direct monthly income of the individual, and this criterion has changed from time to time. Currently, anyone with a monthly income of less than Birr 105 (about US\$13 at the current exchange rate)³ would be eligible for getting fee waiver privilege. In addition, patients utilizing certain

³ US\$1.00=Birr 8.2, or Birr 1.0=US\$0.12

services or presenting with certain categories of diseases are exempted from fees at public facilities. The consequence of this policy is that a majority of patients visiting government facilities pay nothing. According to a recent survey in Northern Ethiopia, about 52% patients at the public facilities in the zone (a hospital, a health center and two health stations) were getting services free of charge (Engida and Haile Mariam, 2000).

The majority of the public health budget is allocated to hospital services, which are delivered predominantly in urban areas where only 15% of the population lives. Of the total health budget, more than 65% is allocated for salaries of health workers, even in the health centers and health stations. The proportion of the budget devoted to salaries is even higher in facilities where drugs are scarce and facilities are poorly maintained (PHRD, 1998). In such situations, which are increasingly common, quality of services has declined because of the scarcity of the elementary tools and inputs health workers need in order to do their jobs.

Even though there are only a few studies⁴ that measured the unit costs⁵ of producing health services, it has been shown that the average costs of dealing with selected health interventions at hospitals are much higher than the average costs of dealing with similar situations at selected health centers and health stations. In addition comparison of the unit costs with user fee levels has shown that most of the services are priced well below their average cost of production. Government now covers all but a small fraction of the total costs of providing these services (BASICS, 1998a).

Since the legal framework for private practice (even by publicly employed physicians) was established in 1995, private health services have started to flourish in the urban centers. Medical professionals are increasingly seen to give more attention to such part-time practices, since the incentives for hard work in the public sector are very weak. As of 1999 there were 7 NGO hospitals, 4 private hospitals, 9 NGO health centers, 966 private clinics, 11 Red Cross pharmacies, 263 private pharmacies, 4 Red Cross drug shops, 232 private drug shops, 2 red cross rural drug vendors, and 1856 private rural drug vendors registered and licensed to operate in various regions under the Ministry of Health (MOH, 1999).

According to an assessment in 1998, the number of private clinics per 100,000 population varied by region, from a low of 0.64 in a region in the southern part of the country, to a high of 12.9 in the capital. However, approximately 50% of health professionals working in private clinics did not have government release papers and thus were operating illegally. Most importantly, the capacity of MOH and of Regional Health Bureaus to conduct regular supervision and monitoring of licensed private providers was found to be weak. Even though

⁴ Policy and Human Resource Development Project. 1998. "Unit Costs of Preventive and Curative Health Services in Ethiopia", PHRD, Report by Development Studies Associates, Addis Abeba.

⁵ Of course, all the unit cost studies that are cited are accounting studies that came up with average cost estimates even though it is known that marginal cost estimates are more relevant than average cost estimates for pricing decisions. The average cost estimates may actually be quite misleading in view of the common (though variable) condition of underutilization of facilities. Where there is slack capacity and low use, the average cost per visit would be unusually high while the marginal cost would be unusually low—close to zero. Improved efficiency and improved use rates, in such circumstances, could be achieved, paradoxically, only by increasing expenditures at first, mainly on drugs and supplies that should have been part of the factor inputs required for minimum operating standards of the facility.

the proliferation of these services seemed to have expanded the choices available to those who can afford their fees, there have been various complaints by the public about the operation of the private sub-sector. These included the poor quality of services provided, exorbitant charges, and unnecessary investigations and prescriptions. Complaints have also been expressed by private practitioners about bureaucratic constraints, limited supplies of pharmaceuticals and equipment, and a shortage of qualified personnel. In addition, restricted access to capital financing and the limited effective demand for services due to low per capita income of the people were problems mentioned by private practitioners (BASICS, 1998b).

Coverage by formal health insurance plans in the country is very minimal. Some state-owned enterprises reimburse 50% of the medical costs incurred by their employees. Ethiopian Insurance Corporation (EIC) is one of the five or six commercial establishments providing health insurance as an optional extension to the life insurance policies they offer⁶.

1.3 Ethiopia's Health Care and Financing Strategy: The Basis for this Research

In view of the above mentioned problems in effectively financing the provision of health services, the Ethiopian government has adopted a health care financing (HCF) strategy that, among other policy reforms, calls for increased cost recovery in government-sponsored health services and increased reliance on the private sector including NGOs (MOH, 1998).

The goals of this strategy that is currently being implemented are:

1. To identify and obtain resources which can be dedicated to preventive, promotive, curative, and rehabilitative health services for the people;
2. To increase efficiency in the use of available resources;
3. To increase absolute resources to the health sector; and
4. To promote sustainability of the health care financing and improve the quality and coverage of health services.

The elements of this strategy are:

1. Improving government health sector efficiency;
2. Generating additional and new sources of revenue;
3. Encouraging the involvement of the private sector including NGOs;
4. Promoting community participation;
5. Encouraging bilateral and multilateral agencies' participation; and
6. Developing alternative financing options for urban areas

Providing technical and research assistance in support of the FDRE's health care financing strategy is the Health Financing Secretariat in the Ministry of Health's Department of Training and Health Services. This Secretariat receives support from a USAID-funded project called

⁶ For detailed discussion of the Promise and Potential pitfalls of expanding health insurance in Ethiopia, Sec. 17 Fairbank

Essential Services for Health in Ethiopia (ESHE), which is sponsoring a number of policy-related research studies to facilitate implementation.

This study has been conducted by the Secretariat under contract to a team of researchers with the intention of providing information on the determinants of willingness and ability to pay of communities for improved health services in the country. The results of the study will be used to assist in the analysis of alternative means to implement the government's health care and financing strategy of 1998.

1.4 Goals of this Research and Outline of this Report

This research has been conducted to achieve the following objectives:

1. To gather the relevant data and perform the analyses needed to be able to predict, in a variety of alternative scenarios, how adjustments to user fees in health facilities could be made in a way which maximizes net revenue while achieving optimal levels of other important goals.
2. For government facilities, the alternative scenarios for adjusting user fees would include reasonable options regarding:
 - Improvements in service quality;
 - Retention of fees by facilities in order to fund those improvements; and
 - Waivers of fees for those with the lowest incomes.

Section 2 describes and discusses the major principles involved in this study and outlines the conceptual framework of the approach to data gathering and analysis. Section 3 describes the framework for evaluating alternative health financing policies and examines alternative approaches to research on measuring key variables needed in the evaluation. Section 4 presents a review of the literature on the policy issues and research questions involved. Section 5 describes the plan for conducting the research and analyzing the data. Section 6 presents the research results. Section 7 discusses the results and shows how they can be used. Section 8 proposes next steps for policy research on the issue of quality and the appropriate level of user fees for cost recovery.

2 Willingness and Ability to Pay: Principles and Conceptual Framework

2.1 Definition of Willingness and Ability to Pay

The phrase “willingness and ability to pay” refers to both to “preferences” and “behavior” on the part of consumers, with “financial constraints” (only so much income, prices posted by government or given by the market) intermediating them. The consumer’s “preferences” are formed on the basis of three considerations:

- a consumer’s needs and desires;
- information about the existence and characteristics of a good or service; and
- a judgment about one’s own probable benefit from that good or service relative to one’s other needs and desires and capacity to satisfy them--given the price and the cost of the transaction.

“Preferences” (as affected by the consumer’s income constraint, or ability to pay, and prices) are reflected in the consumer’s “behavior” of actually purchasing the good or service—at a given price paid for out of the consumer’s income or borrowing. This “behavior”, in the language of economists, comprises an expression of “consumer demand” for the good or service.

Thus, when one speaks of studying the willingness and ability to pay for health care, one is talking about studying consumer demand for health care services—a thoroughly studied subject in many developing countries, but one not addressed in depth in Ethiopia. In this study, we address some specific issues of health financing policy, and thus will be discussing issues of the supply of, as well as the demand for, health care services.

It is well known that the quality of services supplied, and the prices attached to them, has important bearing on the responsiveness of consumers considering them for purchase. It is the purpose of this study to try to measure the relative quantitative importance of major determinants of demand and supply—price and quality principal among them--and to recommend to policymakers how health finance policy might be adjusted to advance certain health policy goals. Before we describe the evaluation framework, let us discuss some basic principles of health care demand and supply (see Wouters (1991, 1994) and Bitran (1988, 1990, 1994)).

2.2 Basic Concepts and Principles of Health Care Demand and Supply⁷

First, we should note that need for health care, as perceived by the medical profession, is often different from the demand for health care, as expressed by consumers. The discrepancy between these two perspectives leads to two kinds of problems. One problem is that consumers

⁷ For a more detailed description of basic concepts and principles, see A. Fairbank, “Improving the Quality of Services and Adjusting User Fees at Ethiopian Government Health Facilities: Estimating the Potential Impacts of Implementing Various Options,” ESHE Project, Ministry of Health, FDRE, Addis Ababa, forthcoming.

sometimes do not get the care they need because they do not realize that they need it. Obvious examples are preventive care, certain kinds of population-based public health measures, and certain symptomless conditions like early-stage cancers. In these cases, consumers value available health care services below their true value. Another problem is that consumers sometimes pay for services that they think they need but which are not actually needed for their condition or are not effective. In these cases, consumers value the services above their true value and waste their money (except to the extent they get some satisfaction or peace of mind they would not otherwise have had). Thus, the concept of consumer “demand” refers to valuations of health care services by consumers, and reflects consumption of services in some instances different from those really needed (as perceived by medical professionals).

Second, “demand” for any type of health service is the quantity of that service that people collectively are willing to consume. This quantity varies according to the characteristics of the individual consumers (their perceptions, incomes, preferences, locations, insurance coverages, etc.) and the characteristics of all the providers from which they might choose (their locations, prices, qualities, etc.). The demand relationship most often referenced by economists is that between (1) quantity demanded and (2) price, which almost always has a negative sign (an inverse relationship). Such a downward-sloping demand curve reflects the almost universal truth that quantity demanded rises as price declines, and vice versa—while all other variables which also might influence quantity demanded remain unchanged. Different providers offering services perceived to be of differing qualities will face differing demand curves for their services. It is usual that providers offering better quality services can charge, and receive, higher prices for their services. Thus, if instead of putting price on the y-axis, one put quality on the y-axis, one could show (with quantity on the x-axis) an upward-sloping demand curve when quantity demanded is shown in terms of changing quality—the better the quality, the more services demanded—again all other determinants, including price, remaining unchanged.

Third, utilization of health services represents satisfied demand—or, the result of consumers’ behavior in the market actually choosing providers and spending money on their services. In most markets for services, where there is unfettered competition, complete consumer information, and free entry, prices can (and usually do) adjust to equilibrate the market. When there is excess demand, prices rise to reduce quantity demanded. When there is excess supply, prices decline to increase quantity demanded. Of course, providers of services can adjust other factors—such as quality—to manipulate the quantity demanded. Private markets for health care services, however, are distinctly imperfect⁸, and are a small portion of the total supply of health care in developing countries, and most certainly in Ethiopia. Government-sponsored health services are dominant precisely because of the scarcity of private medical care and the inability of most of the population to pay the full cost of needed services. Therefore, factors other than price determine utilization, and instances of excess demand and excess supply are not uncommon in various places and at various times in the government hospitals and clinics.

Last, the supply of health services, especially when organized by the government, will not necessarily correspond to what is needed or demanded by consumers. In other words, supply does not create its own demand—even when money prices are set at zero. There is always a

⁸ A thorough analysis of market failure in medical care markets (and the implications), see T. Rice, *The Economics of Health Reconsidered*. Chicago: Health Administration Press, 1998.

cost to service provision, as well as to service consumption, whether money prices are high, low, or zero. On the supply side, the cost is the government's use of resources that could have had some other productive use⁹. On the demand side, there are always transaction costs to the consumer—the cost of traveling to the provider and waiting to be seen. Because government has typically sought to organize health services as service provider for the whole population (to the extent feasible) and because it typically faces severe resource constraints, its budgetary decisions tend—in their effect if not their intent—to reduce quality in order to increase quantity. Unfortunately, “quantity” is typically perceived as inputs in terms of staff or in terms of “coverage” by physical facilities rather than in terms of outputs in terms of services delivered. When the complementary inputs such as drugs, supplies, and maintenance are reduced, perceived quality declines and utilization (“quantity”) declines.

Government policy can be used to address discrepancies between need and supply, demand and supply, and need and demand. As pointed out in Bitran and McInnes (1993), any gaps between what services the government is supplying through its facilities and what the people need can be addressed by better health planning based on reliable epidemiological data. If, after attempting to implement the plans indicated by the data, there remains a gap between demand expressed by consumers and what the epidemiological data indicate they need, the government could address the gap through health promotion and educational initiatives which attempt to direct demand towards the services indicated as being needed. Fundamentally, however, the most crucial role for the government is to align its supply of services to what consumers actually demand—if only because supplying unused or underused services is so wasteful. This is an issue for organization of services—providing the managers and providers of services both the incentives and the resources to be flexible and responsive to the needs as expressed by consumer demand.

2.3 Quality as a Determinant of Demand

Numerous studies have confirmed the common sense notion that quality, as perceived by the consumer, is a major determinant of demand for medical care services. After all, it is the perception of high quality that underlies a consumer's perception of value of the services—that is, the margin by which the expected benefit exceeds the cost of purchase. However, just as there is often a difference between what a consumer wants and what he or she needs in medical care, there is also a similar difference between what he or she perceives as being high quality and what a medical professional would consider as being high quality. It is important to keep this discrepancy in mind as we proceed with this research. Three points are particularly relevant:

- (1) what consumers want in terms of high quality will dictate their willingness to pay and thus is likely to greatly influence their responsiveness to any price increases; but
- (2) what consumers want in terms of high quality is not necessarily easily measured as an independent variable; and
- (3) what consumers want in terms of perceived quality does not always translate into easily implemented health policy initiatives nor necessarily constitutes effective medical care.

⁹ Referred to by economist as the "opportunity costs" of any use of resources.

Governments need to pay attention to (1) because that factor will have bearing on the level of revenues they receive from user fees. We are conducting this research in order to advise the government on what quality initiatives, combined with what user fees, would be optimal policies. Credible results depend on a reasonable measurement of quality in (2). To the extent to which consumers are ill-informed about quality (in (3)), governments would need to take steps to educate them without sacrificing the revenue-generating characteristics found in (1). Of course, from the point of view of medical professionals, improving quality is a difficult multidimensional task—one which critically depends upon the current quality levels, the resources available to improve them, and the prioritization among the various steps which need to be taken to make particular types of services more effective.

2.4 Elasticity of Demand and Assessing Policy Alternatives

“Elasticity” of demand is an economic concept that refers to the degree of responsiveness by consumers (in terms of quantity demanded) to changes in their own individual characteristics (e.g., income) or product attributes (e.g., price). The concept is calculated as the percentage change in quantity demanded (due to the change in the consumer characteristic or product characteristic) divided by the percentage change in the characteristic or attribute.

Price elasticity of demand is the change in quantity of services demanded due to a change in the price of the service. For example, a **price elasticity of -0.5** means that a *10% increase in price* leads to a *5% decrease in quantity demanded* (if no other changes occur).

Income elasticity of demand is the change in quantity of services an individual demands due to a change in that individual’s income. For example, an **income elasticity of $+1.2$** means that a *10% increase in income* leads to a *12% increase in quantity demanded*. (if no other changes occur).

Quality elasticity of demand is the change in quantity of services demanded due to a change in the perceived quality of the services. For example, a **quality elasticity of $+1.5$** means that a *10% increase in perceived level of service quality* leads to a *15% increase in the quantity of services demanded*. (if no other changes occur). Of course, in contrast to price and income, the quality of services is less easily measured, and thus its elasticity is less reliably estimated. Nevertheless, the concept is important to introduce here because it is relevant to our research and our study purposes.

Elasticity is, in effect, the measured rate of change in the demand curve in the area of the mean of both the dependent variable (quantity demanded) and the independent variable (that is, price, income, or quality, in the above examples). As such, it is the slope of the demand curve in the neighborhood of the means of existing prices, incomes, and qualities. *Arc* elasticities, however, differ from these *marginal* elasticities. An arc elasticity is the slope of a line between two different points relatively far apart along the arc of the demand curve. It would be the relevant measure to use when trying to predict changes in quantities demanded due to very large changes in the independent variable. But arc elasticities cannot be directly imputed from empirical research precisely because demand curves cannot be measured, using cross-sectional data, except in the immediate neighborhood of the means of the variables in question—that is,

empirical cross-sectional research generates marginal elasticities. The reason for making this point is to emphasize that the empirical results cannot be reliably used to predict large changes in the independent variables, that the higher the percentage change being estimated, the less reliable the resulting prediction based on empirical estimates.

With this caveat in mind, we intend that the empirical estimates of elasticities to be produced in this research will be used to predict changes in quantities demanded (and revenues realized) when the values of the determinants in question are changed.

2.5 Descriptive Analysis versus Multivariate Analysis

Descriptive analyses are valuable for what they tell us about the results of individuals' behavior and how certain segments of the population differ in their overall utilization behavior. But descriptive data alone cannot tell us the factors which determine individuals' behaviors and the relative degree of importance of multiple factors. Presenting crosstabulations of descriptive data that do not include key determinants of demand can mislead policymakers to draw conclusions which are not warranted. An example of the importance of factors which are less well-known is that of travel and waiting costs. In situations where this cost is substantial, relatively small changes in money price will have little or no effect on utilization because, as a percentage of the total cost of consuming the services, the change is even smaller than is apparent.

Multivariate analysis attempts to account for many independent factors at once, and, if applied to reliable data, generates coefficients which enables a policy analyst to generate predictions of the changes in utilization which can be expected to occur—in the aggregate—if any one of the independent variables changes from the mean for the sample. Moreover, the estimated parameters can be used to predict the behavior of any one individual simply by inserting the values of the independent variables for that individual into the estimated equation.

2.6 Problems with Multivariate Analysis: A Qualitative Approach

Multivariate analyses using household data do have weaknesses, however, mainly related to specification of the model and measurement errors. In the particular case we are examining here, quality variables are difficult to measure. Moreover, some of the most easily collected quality variables (e.g., availability of essential drugs) are not really independent, since their value depends on the interaction of supply and demand, and does not solely determine demand. Whenever measurement error is serious enough, the estimated coefficients are biased and cannot be as reliable for analysis as one would like. An example of the problems is pointed to in the study by Ellis et al. (1994), who found that an inadequate measure of quality (in their Egyptian data) made it impossible to measure a direct price response in their estimated equations.

In order to supplement the statistical analyses to be done in this study, we have also added a series of focus groups to elicit nuanced responses about the quality and price issue from consumers in Ethiopia.

3 Evaluating Health Financing Alternatives: Context, Criteria, Policy Tools, and Options

3.1 Context: Multiple Institutional Objectives in Health Policy

Our approach to this research is to view health financing policy from the broader perspective of the need for health sector reform. In this view, methods for financing health care are evaluated not just from the level of revenue they produce, of budgets they require, or of services they may finance, but rather how they might impact the broad range of objectives government may have in the health sector

In general, the objectives have three dimensions: coverage, cost, and quality. Governments typically seek to ensure the broadest coverage, at the least cost, with the highest possible level of quality. Because resources are scarce and have opportunity costs, it is inevitable that pursuit of any one of these goals requires tradeoffs with one or both of the other two. For just one example, expanding coverage and/or improving quality can be realized only with increased costs. How these increased costs might be financed would then determine the level and pattern of distribution of any (net) benefits. For example, on the one hand, if new financing is pursued by raising revenue, its impact on access and utilization will depend on how it is raised and what it is spent on. On the other hand, if new financing is pursued by cutting costs, its impact will depend on what spending is reduced or eliminated and how the freed up budget is allocated among possible new uses.

Not only do governments have to balance competing and conflicting policy objectives as indicated above, but they often are subjected to conflicting political pressures due to the multiple roles they play in the health sector. Government is often a major employer of both patients and providers of its own health delivery system. It may also be an insurer for them, providing the financing for a certain level of health benefits to them. But government also has a fiduciary responsibility to taxpayers, and is responsible for funding and operating a host of other government programs besides running a health system and regulating the private medical care sector. In playing all of the roles at once, it is subject to conflicting goals and political pressures.

The nature of behavioral incentives in the private health sector is only somewhat less complex than those in the public sector. In many developing countries, nongovernmental organizations (NGOs) are dominant players in the private medical care delivery system. They have social and religious as well as service-related goals and often serve more than one constituency, and, if they are religious organizations, more than one objective.

In approaching an assessment of the impacts of alternative financing methods in the health sector, it is necessary to keep in mind the multiple roles and objectives of the major institutions active in the sector.

3.2 Criteria for Judging Policy Outcomes

There are a number of criteria for assessing the results of a change in financing policy. These are roughly parallel to the multiple dimensions of the health sector context: access, cost, and quality.

Access: Does the policy result in increased or decreased population coverage and/or utilization? Does the change in utilization differ according to population group or region. In other words, how does it affect the overall distribution of services, and, hence, of benefits received by citizens?

(Net) Revenue/(Net) Cost:¹⁰ Do the changes from the new policy cause an increase or decrease in net revenue (or net cost)? What are the increases or decreases in revenue? Does the policy require, and/or result in, increased or decreased costs? In other words, what changes in costs are due to complementary changes (i.e., improvements in) quality, and what changes in costs are due to the net changes in utilization caused by the new policy? Of the changes in costs, how much are fixed costs and how much are variable costs?

Quality: Does the change in policy require an improvement in quality as part of the change in policy? If so, how much of an improvement actually occurs? If not, does the change in policy have any impact on the existing level of quality?

System structure and performance: Does the change in policy require, or lead to, any structural changes in the health sector, and/or in the way the system performs? In particular, do the relative roles of the public and private sector change in any appreciable way?

3.3 Policy Tools for Affecting Outcomes

Making the privatization of health financing a part of health sector reform is an acknowledgement that government cannot (or, at least, chooses not to) continue to fund the level of subsidies it has provided to the public health system in the past. But the primary goal is not simply to raise net revenue above what it otherwise would have been. Instead, the primary goal is an overall improvement in systems performance, as gauged by the criteria above—namely, to expand and improve services, with the net improvement financed at little or no cost to the government, or, in the best case, at a net gain in revenue to the government.

There is a combination of policy tools available to achieve this goal:

- Raising user fees at the point of service;
- Prepayment for a fixed set of service benefits;
- Retention of fees at the facility with discretion to use increased revenue to improve quality;
- Appropriate fee waivers for the poor; and

¹⁰ Any gains should always be viewed in terms of “net” revenue, because there will be, in addition to changes in revenue, changes in costs to any changes in utilization of services as well as changes costs due to any deliberate changes in quality of services offered. If increased costs equal increased revenue, net revenue is zero.

- A program of quality improvement possibly funded from the budget and/or from user fees retained by facilities.

It should be reemphasized that privatization of health financing is a means to an end—the end being improvements in system performance and expansion of coverage. It is not a goal in and of itself, and it is not the only means to achieve the overall goal. As the means chosen by the Ethiopian government, its prospects for achieving the stated goals need to be thoroughly and dispassionately analyzed, once the necessary data have been collected.

3.4 Interactions among Policy Tools

Analysis of the potential impact of privatization of health financing needs to recognize that the various policy tools mentioned above have interactive effects. That is, the sequence in which they are implemented and their relative magnitudes can have total policy impacts which, when taken together, are different (greater or lesser) than the sum of the independent impacts of each measured as if taken separately.

3.5 Alternative Approaches to Research on Financing Policy

As mentioned already, a number of studies have confirmed the common sense notion that quality (at least consumers' perception of it) is a major determinant of patients' choice of health care providers, and of how much they will spend on health care after choosing a provider.¹¹ These studies have supported the recommendation that quality improvement should precede or accompany any increases in user fees.

The central question for policymakers seeking to implement this recommendation is:

If it would be counterproductive to adjust user fees without associated improvements in quality, what improvements in quality should be made in association with what changes in user fees, and in what sequence should they be made in relation to other changes?

We expect that this general question has no single answer applicable broadly across Ethiopia, but rather has different answers that are likely to be specific to different services and to different regions of Ethiopia.

Moreover, there is no one research method or approach that will provide all the data needed for answering this question and all its corollary questions. The following approaches have been adopted for this study because, despite the fact that each has its own unique drawbacks, each has benefits which ultimately complement each other to produce a comprehensive picture to provide the foundation for policy analyses and recommendations concerning the central question. These approaches were:

¹¹ The literature review in Section 4 provides a detailed overview of the research.

3.5.1 Patient and Facility Surveys

The study conducted a survey of patients seeking care at a sample of ambulatory care clinics (both public and private). Data on the facilities themselves, their services and resources, were also collected. The sample of facilities was designed to be representative, but was also targeted to parallel the household surveys, as described next. While this survey did not generate the kind of data needed for multivariate analyses, the descriptive data it made available supplemented the data collected in the household surveys to enable multivariate analyses. Moreover, the patient and facility surveys have laid the groundwork for the subsequent data collection at the same (or similar) facilities after quality and user fee changes. These longitudinal ex post studies examining service utilization patterns before and after the introduction of user charges and quality changes are known as “one group (no control) pretest-posttest quasi-experimental designs.” Such designs are helpful, but suffer the drawback from their inability to attribute changes in the dependent variable (utilization) to the independent variable (price).

3.5.2 Household Surveys

Household surveys generate cross-sectional data that allow estimation of the effect of numerous independent variables on the dependent variable “choice of provider” and/or “quantity of services demanded”, and thus allow for control for multiple influences on utilization besides price. Such surveys also allow the isolation of the independent effect of each independent variable. To this end, the study administered a household survey instrument to samples totaling 4,193 households. There was a general survey, attempting to gather representative data from 2,874 households in urban and rural areas of the four largest regions of Ethiopia. There was also a focused survey in six catchment areas surrounding selected NGO clinics. Each of these surveys canvassed 254 households and intended to collect data on the market behavior of households which had more choices among providers than was typically the case throughout Ethiopia. These household surveys facilitated multivariate estimation of demand relationships and were sufficiently large to allow inferences to be drawn and generalizations to be made with some rough level of confidence. Among several drawbacks to analyses based on cross-sectional data is that measurement error and lack of variation of some independent variables can lead to biased results. Measurements of quality, either as an observable or an unobservable variable, suffer from this problem.

3.5.3 Contingent Valuation Survey

To address the problem of lack of variation in the perceived quality of services at government facilities, particularly with respect to price, this study asked, as part of the household survey, questions of a hypothetical nature to determine how consumers valued particular kinds of improvement in quality. From among the various approaches to contingent valuation questions, this study chose the approach of eliciting a yes/no response to an initial offered price for a specified quality-of-service improvement with a follow-up question of the respondent’s maximum willingness to pay for that improvement. In the event a respondent said he/she was not willing to pay at all, a third question was posed which asked the main reason for the refusal.

This approach identified a particular service improvement in terms of a specific quality attribute and then asked whether the respondent would or would not pay a specific price for it. Different prices were offered to five equal portions of respondents, the different prices based on previous estimates of unit costs for the improvements and were randomly distributed throughout the questionnaires. The results were to be used to estimate a demand curve for a particular service with a particular quality attribute. Many of the important independent variables to be controlled for would be available from other parts of the household and exit surveys.

3.5.4 Focus Groups

Quantitative analyses of willingness to pay for quality of medical services may not capture certain qualitative dimensions of the topic that would be important (1) for government policymakers to know prior to making decisions on raising user fees, and (2) for NGO clinic managers to know for designing sustainability strategies. For example, it would be important to know the bases for patients' perceptions of quality, which may differ from professionals' opinions or assumptions of what those perceptions should be. In many developing countries, quality is often seen as mostly a function of the availability of drugs and/or injections, no matter what the condition of the facility or the competence or training of the practitioner. Moreover, quantitative analyses could be improved if analysts could know in more detail some of the attitudes of respondents and some of the realities of the medical care delivery system that are relevant to the research. Focus groups are a method for acquiring this important knowledge.

This study aimed to measure the impact of a variety of factors on patients' health- and treatment-seeking behaviors, with particular focus on patients' response to changes in prices and in perceived quality of services. Because this is a complicated subject, it was felt that the study should not rely on just one approach, but should use several approaches, each of which would capture different dimensions of the underlying bases for patient behavior. One approach (focus groups) would gather qualitative information, while the other two approaches would gather quantitative data (patient/facility surveys and household surveys).

The focus group study would attempt to discover the relevant differences in behavior that are evidenced in diverse geographic regions (areas of four regions will be sampled), differences between public and private facilities, and differences between urban and rural areas.

4 Literature Review

Considerable research has been conducted in developing countries about the relative roles of price and quality in determining demand for health care—much of it conducted by the Health Financing and Sustainability Project, predecessor to USAID’s current Partnerships for Health Reform Project. The interest in quality was a direct consequence of the policy interest in user fees, which was first raised in a highly visible way by the World Bank in the 1980s (World Bank, 1987). It has been routinely observed, even at that time, that the impact of raising user fees (as advocated by the World Bank and others) would depend critically on how consumers assessed the quality of services being offered. Much of the research has tried to estimate just how important quality is. The task was to find out for policymakers what quality improvements—which, after all, have a cost—would generate the highest net return (change in revenues less change in costs) when implemented along with increased user fees.

As noted already, quality of health care services is a multifaceted and complicated concept. Not only are its various dimensions perceived and valued differently by patients and providers, but each of those dimensions is difficult to measure with any confidence or precision no matter whose point of view the researcher seeks to evaluate.

From a technical point of view, the three general dimensions of quality, as noted by Donebedian (1980), are:

- The structural components—the acceptability and appropriateness of physical settings in which care is delivered and the technology and equipment that are used;
- The process components—the degree to which proven or accepted diagnostic and/or treatment protocols are being followed by the provider and complied with by the patient; and
- The outcomes component—the degree to which the services delivered actually result in health status improvement and/or patient satisfaction with them.

While it is hoped that high quality in structural and process components would lead to high quality outcomes, it is obviously not certain. By the same token, positive outcomes do not necessarily mean that high quality structural and process elements of care were used. What providers may think of, or know of, as high quality care in all three dimensions, however, does not always correspond with the views of patients.

In any event, an effort to research the willingness and ability to pay for various kinds of quality would need to focus on what the patients’ views on quality are, not what providers’ views may be. Although there are important qualitative dimensions of quality that cannot be captured in quantitative analyses, this review below focuses on the quantitative research. Quantitative research on willingness to pay, in general, and for quality in health care services, in particular, is reviewed in three categories: (1) descriptive studies; (2) multivariate analyses of household surveys; and (3) contingent valuation studies.

4.1 Descriptive Studies

A number of descriptive studies have attempted to address the question of the impact of raising user fees on utilization. Only a few have addressed the role of quality as an intermediating factor. Such studies are typically facility-based surveys of users who present for treatment, or reviews of utilization statistics by facility before and after the user fee change, and/or quality improvement if it occurred. The main thrust of such studies is to examine the pattern of service utilization, before and after, as an indirect indicator of the willingness to pay for services. The formal term for such studies is "one group (no control) pretest-posttest quasi-experimental design." (Wouters et al., 1993).

One longitudinal study by Waddington and Enyimayew (1990) examined whether use of health services fell as a result of the 1985 introduction of user fees in the Volta Region of Ghana. The main goal was to increase cost recovery overall from less than 5% to about 15% of the total recurrent budget for government health services. The principal change was to charge full-cost prices for drugs, to ensure a reliable supply, and to vary the modest charges for consultation by region. Half of the revenues were sent to the central Treasury and the remainder was split 50/50 between the Ministry of Health and the collecting facility, which could use it to upgrade its services. The general result was that use rates in urban areas declined initially and then recovered to pre-1985 levels. Use in rural areas declined and did not recover. Exemptions for the poor were few. The government did realize its 15% cost recovery goal, and availability of drugs was greatly improved in all facilities. The weakness of the study was that many factors, besides user fees, which impacted utilization were not controlled for, and, therefore, the change in use could not be directly attributed to the change in user fees and associated policies.

In Lesotho, the introduction of a new fee schedule for outpatient services in all government facilities in one district was not accompanied by quality improvements. Hall and Malahleha (1989) documented the fact that consumers often preferred private health care despite high prices and long travel times because waiting times and poor staff attitudes were common at government facilities. In a subsequent study, using regression techniques to detect linear trends in weekly utilization statistics, and a dummy for the periods before and after the fee increase, Matji and colleagues (1993) found that the number of outpatient visits declined in both government health centers and hospitals. But they acknowledged the limitations of the study, that the many factors (they listed a number of significant ones) that no doubt confounded the measured changes in utilization were not controlled for.

Another major study (Yoder, 1989) reported data related to the consequences of a government policy change in Swaziland in 1984. That change was to introduce a new fee structure for both government and mission health services that was designed to equalize fees charged by the two sectors (which provided most of the modern services in the country) while keeping net revenues unchanged. Improving the quality of care was neither a policy objective nor a policy instrument, since the equalization was designed to increase access and to integrate the two sectors, rationalizing patient referral and supervision. The policy meant a 300-400% increase in government fees, with virtually no change in mission fees. Fees on preventive services increased substantially from being free of charge in both sectors. Using data from a 71 percent

sample of 35 government and 20 mission facilities, Yoder found that average number of visits at mission facilities increased by 10.2% and declined at government facilities by 32.4%, with an overall decline of about 17%. Again, this study, like the others above, are no more than rough estimates of the pure impact of user fees, since confounding factors are not controlled for. Moreover, quality as an intermediating factor is addressed only incidentally by some, and is not quantified by any, of the studies.

One study which best addressed some of these methodological problems is that by Litvack and Bodart (1993), which reported results of a “pretest/posttest controlled” field experiment in Cameroon. Improved quality, in terms of a reliable supply of drugs, was ensured by requiring full-cost pricing of those drugs. The experiment could be conducted because the policy was being phased in: three “treatment” facilities that had already instituted the new policy could be compared to two “control” facilities that had not. Two rounds of household surveys were conducted six months apart; 800 households were surveyed in 25 villages. The findings were that utilization at the three “treatment” facilities dropped somewhat, but was actually higher for the poor relative to the rich at these facilities, and was higher for the poor at “treatment” facilities relative to for the poor at “control” facilities. Thus, the conclusion was that the poor were disproportionately benefiting from the improved local availability of drugs, even at higher prices, because their convenient nearby availability reduced total costs by reducing the travel time they would otherwise have had to incur to access the drugs at private facilities.

While all of these descriptive studies benefited from the ease of data collection and the relative low resource requirements of implementation, they all suffered (except for Litvack & Bodart) from the impossibility of attributing changes in utilization to cost recovery efforts, whether combined with quality improvements or not. Using one group and no control does not allow the researcher to factor out historical events affecting health status and use, or changes in other confounding factors (such as changes in income, morbidity, and treatment preferences) and learning behaviors (adaptiveness to price and/or quality changes).

Litvack & Bodart provided a good example, however, of how one can use the period during the phase-in of new user fee policies to design methodologically sound studies that would produce relatively useful results without large expenditures of time and money by researchers.

4.2 Contingent Valuation Research

Contingent valuation studies attempt to get respondents to reveal their preferences in terms of their willingness to pay for specific services by describing a hypothetical market for those services as close to real conditions as possible and then by asking them about their preferences in relation to hypothetical price(s). Several different methods can be used which either ask the respondent to name the maximum price they would be willing to pay or ask them his or her reaction to a specific price(s).

This method of evaluating willingness to pay is an imperfect tool because it can only indirectly observe actual willingness to pay for particular services because responses are “contingent” upon the hypothetical description of the service and of the market in question. A respondent’s

real willingness to pay can only be inferred from responses to questions about hypothetical markets, not from the respondent's actual behavior in a real functioning market.

However, this method has sound theoretical foundations in welfare economics¹², and has been frequently used to estimate marginal benefits for cost-benefit analysis of interventions such as improved freshwater quality, transportation safety, and introduction of new services (Cummings et al., 1986; Mitchell and Carson, 1989). It has less frequently been used in the evaluation of health services (Acton, 1973; Thompson, 1986; Weaver et al., 1993). Despite continuing and unavoidable controversy about the validity and reliability of the results of contingent valuation studies, they can serve to provide to policymakers some data-based guidance about certain issues where there is currently no information at all. The relevance of quality in willingness to pay for health care is one such policy area. At least one recent study of contingent valuation of health services by Weaver et al. (1993) showed the method could produce an acceptable level of validity when compared to results from multivariate discrete choice analysis of actual market behavior using the same household survey database

4.3 Econometric Studies based on Household Survey Data

There is a considerable literature examining the determinants of demand for health care in developing countries, but explicit consideration of the impact of quality has been a focus only of more recent studies. Extensive reviews of the former are presented in Bitran (1988) and in Creese (1991). In-depth reviews of the latter quality-oriented studies have been provided by Wouters (1991, 1992, and 1993). This review summarizes Wouters' findings and updates it to include more recent studies.

The theoretical basis for discrete choice models has been well-established. There has been some considerable experimentation with alternative specifications of models for parameter estimation, with the most elaborate examination of the impact of the differences presented in Dow (1993). His most important finding was that conditional models of demand (which do not include "selection of health status"¹³ as one discrete choice of consumers, besides provider type if sick) give parameter estimates that are biased downwards by about 25%. Thus, it is important to use a respondent's reported health status as one of the choices explained by the independent variables of the discrete choice model, whether estimated as a nested multinomial logit specification or not.

4.3.1 Consumer Responsiveness to Perceived Quality

Attempts to estimate the impact of quality on consumer demand for health care have faced difficult theoretical and practical problems. Studies that treated quality as an unobservable variable could not know how much of the unobserved effects captured by the dummy variables were reflective of quality-related factors. Studies that conceptualized quality as an observable,

¹² For a detailed discussion of the theoretical foundations, and the two methods of measuring consumer benefits—compensating variation and equivalent variation—see Wouters *et al.*, 1993, pp. 32-34.

¹³ This refers to the observation that, in the long-run, many of the determinants of choice by people reporting that they were sick also are determinants of whether or not they will report themselves to have been sick. To get unbiased parameter estimates of determinants of demand, the model specification should reflect this.

and thus measurable, variable, faced difficulties of measurement error, endogeneity, and multicollinearity. Exhibit A summarizes the studies, their measures used, and their general findings about the impact of quality. The major studies are discussed briefly below.

Some early demand studies examined quality treated it as an *unobservable* independent variable. Mwabu and Mwangi (1986) constructed provider-specific dummy variables to capture this influence by interacting patients' provider preferences with each of the classes of health care provider (mission, government hospitals, private clinics, government clinics, pharmacies, and traditional healers). Using parameters on these dummies, which produced a ranking in the order of providers listed above, they claimed that it represented a ranking consistent with one that would be obtained based on facility capacity to treat a range of illnesses and reliability of drug supply. Using simulations based on the estimated results, they found that user fees could generate welfare gains if they were used to improve the quality of medical services.

Gertler et al (1988) and Bitran (1989a, 1989b) created a (unobservable) quality variable by postulating it to be a function of its observable determinants, including patient socio-demographic characteristics (incorporating tastes for "quality"). Provider-specific coefficients created provider-specific intercepts, which allowed for a certain core dimension of quality to vary by alternative. In all studies, the estimated parameters on the constructed quality variables were interpreted to reflect the ranking by patients of their perceptions of relative quality among the alternative providers.

For those studies that treated quality as an *observable* (independent, explanatory) variable of a respondent's choice, there were a variety of different measures of quality used. But adequate measurement of quality must surmount theoretical and practical difficulties. First, the theoretically correct concept is to use a measure of the patient's perception of what constitutes quality, since it is an important respondent characteristic that is hypothesized to determine choice to treat and choice of provider. As a practical matter, however, the measure must be exogenous to the other determinants of a patient's choice, and the choice itself. Otherwise, the estimated coefficients would suffer from multicollinearity. (For example, a patient's reported satisfaction with a provider (one possible measure of perceived quality) would correlate rather highly with the provider chosen.) The ideal approach would be to use the patient's definition of quality, but an objective measure (from a survey of facilities or providers), not the patient's reported measure, of that definition.

EXHIBIT A

Selected Health Care Demand Studies: Measures of Quality; Findings on its Impact

Study	Country	Measures of Quality	Findings on Impact of Quality
<i>Observed Quality</i>			
Akin et al. (1986a)	Philippines	<i>Modern</i> : type of practitioner seen <i>Traditional</i> : treatment of any of five common illnesses	Inconclusive: inadequate proxy to control for quality.
Akin et al (1986b)	Philippines	Satisfaction with health services	Inconclusive: inadequate proxy to control for quality.
Ellis & Mwabu (1991)	Kenya	Single score based on principal components of 13 facility measures	Patients willing to pay much more for quality.
Lavy & Germain (1993)		Availability of essential drugs Number of nurses & MDs Provision of basic adult/child health svcs Avail, electricity/running water	Improvements in quality lead to large increases in use with no price changes.
Mwabu et al. (1993)	Kenya	No. of different types of drugs available No. of days in last 180 days antimalarials were out of stock No. of days in last 180 days aspirin was out of stock No. of health workers/facility	Results show drug scarcity impacts demand; but quality is endogenous and gives biased results: quality impact inconclusive
Weaver et al. (1993)	Cameroon	MD on staff (dummy) Score for facility cleanliness No. of essential drugs in stock	Demonstrated that WTP would exceed cost for each quality improvement
Ellis et al. (1994)		NO objective measures used Respondents asked to cite up to 12 quality-related reasons for recommending a facility; single quality score for facility type derived from regression	Elasticities of demand imprecisely estimated since price correlated with quality, and data are unable to control for quality variations.
Chawla & Ellis (2000)		No. of essential drugs in stock Pilot study comparing facilities—with, w/o improved drug supply, staff training, & management	Higher utilization, probably due to improved quality, outweighed any decrease due to higher fees.
<i>Unobserved Quality</i>			
Bitran (1989a, 1989b) Gertler et al. (1988)		Unobservable quality captured by parametric function of observable determinants and provider-specific coef.	Quality reflected rank by patients of their relative perceptions of provider quality
Mwabu (1984) Mawbu & Mwangi (1986)		Provider-specific dummy variable	User fees could generate welfare gains if used to improve the medical care quality

Second, however, and more importantly, many objective measures of quality, as it is perceived (i.e., defined) by consumers, involve some element of the physical capacity of provider supply—like reliable supply of drugs and adequate staffing to avoid long waiting times—which are naturally affected by demand. Even objective measures of these factors would reflect the interaction of supply and demand, and thus would not necessarily measure the exogenous effect of perceived quality in the determination of demand. For example, shortages of drugs could as easily be indicative of high demand as be causative of low demand. There is no straightforward methodological way around this conceptual difficulty, and it serves to compound the problems that exist in trying to measure quality no matter how one defines it. Measurement error, of course, is known to bias any parameter estimates in a downward direction.¹⁴ As we discuss below the findings of the researchers who have addressed the quality issue in studies of health care demand, it should be noted that the above difficulties were usually mentioned as caveats to their results.

Akin and his colleagues in some of the earliest demand studies to attempt to account for quality (1986a, 1986b) found their measures of quality were statistically insignificant. Their findings of very low price elasticities of demand, for both adult outpatient and child outpatient services, may be explained by their inability to include an adequate proxy for quality (i.e., inability to accurately measure quality). They acknowledged that this could have confounded the price variable, and conceded that the apparent insensitivity to price might be at least partially caused by the willingness of patients to pay more for what they see as higher quality care (however defined or measured).

A more recent study by Mwabu and colleagues (1993) of health care demand in Kenya attempted to address specifically many of the conceptual and measurement issues mentioned above. But, they found their small sample size and multicollinearity to be substantial problems. In the specifications where they could enter quality-related variables, the only significant parameter was of unexpected sign. Instead of number of drugs available, they used log of the number of days in the last 180 days in which the facility was out of stock of (1) aspirin (nonprescription drug), and (2) antimalarials (prescription drug). Being out of aspirin was negatively correlated with demand while being out of antimalarials was positively correlated. The interpretation was that drug availability could be indicative of interaction of supply and demand—with out-of-stock for malarial here being indicative of high demand.

In another Kenya study, Ellis and Mwabu (1991) examined relationships between willingness to pay and quality using 12 measures of physical attributes of facilities that were obtained from MOH records. These 12 scores were collapsed into one facility-level quality index using principal components. They found that the facility-level index strongly influenced the choice of provider and that patients were willing to pay substantially more for higher quality services (as measured by the index). The results were not able to show relative patient preferences for specific dimensions of quality, however.

¹⁴ Note that treating quality as an unobservable variable does not directly run into a measurement error problem, at least theoretically, if only because it does not purport to measure something observable. It does have the distinct disadvantage, however, of reflecting supply and demand interactions and of capturing any number of other unknown and unknowable effects which are themselves unobservable and which are not in the error term.

In a 1993 study in Ghana, Lavy and Quigley attempted to identify specific quality improvements that “can pay for themselves” with increased user fees. They sought to measure directly the kinds of quality changes that could be made available to patients: improved physical infrastructure, added staff, and improved availability of services and drugs. To try to minimize multicollinearity, they grouped quality variables into five measures:

- Availability of three drugs;
- Number of medical staff;
- Provision of basic adult and child health services (specific kinds identified);
- Availability of electricity; and
- Availability of running water.

All of these factors had significant and large positive effects, both as individual variables and jointly, with availability of drugs having the highest patient responsiveness. Also, when quality variables were omitted from the equations, the coefficients on the price variables were smaller. While interpretation of the coefficients on quality variables are problematic, since it is hard to translate the quantification of quality into meaningful practical terms,¹⁵ simulations of improvements in quality (using the multinomial logit coefficients) showed that responsiveness of patients was about the same in public and private sectors. Using compensating variation estimation methods, Lavy and Quigley found also that willingness to pay increased with income, and that the income effect was more important for the quality variables than for distance to facility and price.

4.3.2 Consumer Responsiveness to Price and Income Changes

Some of the many econometric studies of health care demand in developing countries have estimated demand elasticities with respect to price, and a few have done so with respect to income. Not all have sought to, or have been able to, adequately control for differences in perceived quality among provider choices as a determinant of demand. More recent studies have focused efforts on measuring the effect of quality on demand, with mixed results. Below is a summary of these studies, which are documented in Exhibit B.

Most studies conducted since the pioneering study of Akin et al. (1986), which showed price elasticities (though negative) very close to zero, have found higher (negative) values. In general, the price responsiveness of consumers is higher for lower income persons and for those living in rural areas. Some studies have reported a range of price elasticities from the different model specifications estimated.

¹⁵ For example, how does one compare a ten percent improvement in drug availability to a ten percent improvement in the number of staff, or to a ten percent improvement in the provision of certain services.

EXHIBIT B

Selected Health Care Demand Studies: Findings on Price Elasticities

Study	Country	Range of Price Elasticities in Demand for...					
		Outpatient Services			Inpatient Services		
		Low	High	Avg	Low	High	Avg
Gertler & van der Gaag (1988)	Cote d'Ivoire	-0.32	-0.62		-0.38	-0.83	
Gertler & van der Gagg (1990)	Peru	-0.46	-0.68		-0.41	-0.64	
Mwabu & Mwangi (1986)	Kenya (lab)	-0.06	-0.20	-0.16			
	Kenya (reg. fee)	-0.03	-0.20	-0.03			
Heller (1982)	Malaysia			-0.15			-0.00
Akin et al. (1986)	Philippines (prenatal)	-0.001	-0.002				
Donaldson & Dunlop (1987)	Ethiopia	-0.05	-0.50				
Akin et al. (1992)	Nigeria			-0.04			
Jimenez (1989)	Sudan			-0.37			
Lavy & Quigley (1991)		-0.02	-0.13				
Schwarz et al. (1988)	Philippines	-0.07	-0.07				
	Urban	-0.01	-0.52				
	Rural						

Schwarz et al (1988) studied demand for outpatient care in the Philippines and found urban consumers' price elasticities ranged from -0.24 to -0.07 , while rural consumers revealed price elasticities ranging from -0.52 to -0.01 . A similar set of ranges were found by Gertler and van der Gaag in their 1990 Peru study. At a low-price range (1.0—1.1), low-income persons had price elasticity of -0.57 while high-income persons had price elasticities of -0.01 . (The overall average was -0.26 .) At a higher price range (1.2—1.3), low-income persons were much more price responsive with an estimated price elasticity of -1.36 while high-income persons had a price elasticity of -0.04 . (The overall average was -0.50 .) (In this study, quality was entered as an unobservable variable measured using a parametric function of observable determinants and provider-specific coefficients.)

Mwabu and Wang'ombe (1995) in Kenya used a very simple linear OLS regression to determine the responsiveness of outpatient visits by day of the week, before and after a user fee increase. They obtained a range (for the five days of the week) from -0.20 to -0.03 for the registration fee and a range of -0.20 to -0.06 for the laboratory fee.

Estimates by Lavy & Quigley (1992) on Ghanaian data on price responsiveness for various intensities of treatment found values ranging from -0.13 to -0.02 . A later study by Lavy and Germain (1993), also in Ghana, also found very low price elasticities (not explicitly estimated). After including five quality variables which generated estimated coefficients which were all positive and statistically significant, they found that, for quality improvements, the “changes in the predicted probabilities of using of a public facility were quite large, e.g. the (51 percent) increase in drug availability led to a 44 percent increase.”¹⁶ “A similar response (elasticity of 0.8) is obtained from an increase in the variety of services available at the public facility.” And they add: “The price simulations clearly indicate that, given the low price responsiveness of demand, prices would have to increase drastically in order to offset the (positive) effect (on utilization) of improving quality.”¹⁷ “For example, in the availability of drugs, services, and infrastructure were to be improved in public health care by 100 percent, user fees would have to increase by more than 1200 percent to offset the increased predicted probability of choosing a public facility.” The authors point out, however, that “given that many individuals in the sample report being treated at public facilities for no fee, this result should be interpreted with some caution.”

The importance of adequately controlling for (perceived) quality variations across providers (exogenously measured) has been underscored by the results of two studies: one by Ellis *et al.* (1994) in Egypt and another by Chawla and Ellis (2000) in Niger. The first study found that “price responsiveness of inpatient and outpatient demand are imprecisely estimated because price is highly correlated with quality, and the available data on facility quality do not permit us to adequate control for quality variations across facilities.”¹⁸ The second study reports that “changes in price responsiveness (across income levels) are striking: for low income levels, the probability of seeking any treatment declines as prices are increased, while for high income levels, the probability is predicted to increase with prices. Although contrary to usual economic theory, this is consistent with inadequately controlling for facility quality variation, which may be correlated with prices and highly desired by high-income individuals.”¹⁹

Estimation of elasticities is typically done by running simulations of a set change in the price variable (say, plus and minus 10%) using the means of the other independent variables, and calculating the percentage change in the predicted probabilities of choice of provider type. Certain weaknesses in the results should be noted. First, elasticities can be low simply because the monetary price for outpatient care is low, if it is. A large percentage change of a low price has a different impact than the same large percentage change at a higher price. This effect was illustrated in the different results, by price range, by Gertler and van der Gaag (1990). Second, being averages at the mean of independent variables, they are not exact elasticities, and cannot be reliably used for very large changes in prices—which are often under consideration in developing countries. Third, as previously noted, the uncertainty of precision in measuring both quality and price (which is often entered as an average expenditure, or revenue per visit) gives some downward bias to the coefficient estimates.

¹⁶ Lavy & Germain (1993), p. 15.

¹⁷ *Ibid.*, p. 17.

¹⁸ Ellis *et al.*, p. 183.

¹⁹ Chawla & Ellis (2000), p. 82.

Nevertheless, these caveats notwithstanding, some general conclusions are possible from the weight of the findings in the literature:

- □ Price responsiveness is relatively low (in the range of -0.3 to -0.05) and is lowest for services perceived to be of the highest quality, and is probably lower for inpatient than for outpatient services;
- □ Price responsiveness, in general, is relatively higher for low income persons than for high income persons; but
- □ Where drug availability may be problematic (i.e., costly to access), the high elasticity of response to improvement in this one quality dimension (for all income levels) may be sufficient to generate net welfare gains where the overall price of consumption (higher drug prices plus travel costs) actually drops despite the money price increase.
- □ For other quality dimensions (besides drug availability), for public sector services, the net benefits from delivering quality is an empirical question, and likely to vary from one quality dimension to another, as the marginal cost may for some quality dimensions be greater than the marginal benefit as measured by the price consumers are willing to pay.

5 Research Methodology and Analytical Approaches

5.1 Study Objectives

5.1.1 General Objective:

The general objective of this study was to collect and analyze data on how patients' utilization of health services is determined by the level of user fees and by perceived quality of services—at both public and private/NGO facilities. Analyses of the data were designed to show how the data can be used to answer relevant policy questions on user fees, retention of fees at facilities, and exemptions for the poor.

5.1.2 Specific Objectives:

Specific objectives of the study were to answer the following questions:

1. For various kinds of services, and for various levels of perceived service quality, what is the willingness (and ability) of Ethiopians to pay for health care services?
2. Given the measured willingness (and ability) of Ethiopians to pay for health care services, what would be the likely impact on utilization, costs, and revenues of an alternative user fee schedule for government health services: under (1) various regimes of quality, (2) fee retention at facilities, and (3) an alternative fee waiver policy?

5.2. Sampling Strategy

5.2.1. Household survey:

The sampling approach sought to serve the related but somewhat different interests of the two partners supporting this research. The HCF Secretariat is interested in results that would be nationally generalizable, while Pathfinder International is interested in sustainability issues impacting clinics they support in certain catchment areas of the particular regions where the clinics are located (the Southern Nations, Nationalities, and Peoples Region (SNNPR)). It is conceded that both these purposes cannot be fully achieved in the same survey, simply because the size of survey needed both to draw national conclusions from random sampling of households and to focus on certain areas would be much too large. However, it was thought possible to draw some reasonably general conclusions from an approach that used the same survey instrument administered to separately drawn samples. The first would be a broad-based national sample of urban and rural areas of four regions (comprising almost 90% of the Ethiopian population). The second would be a survey targeted on households randomly selected in the catchment areas of four NGO clinics²⁰ purposefully selected by Pathfinder to

²⁰ While it was planned to canvass four such clinics in the SNNPR, one of them could not be reached during the period of the interviews. The other types of provider clinics in the surrounding area, however, were successfully canvassed. The results of that study were reported in a separate publication: Health Care Financing Secretariat/Ministry of Health, Ethiopia, "Estimating the Willingness to Pay for Medical Care in the SNNPR

answer specific questions they have about the market for services in the areas of those clinics—questions which will help them to refine their strategy for helping these clinics to achieve sustainability.

Therefore, our sampling approach was to conduct surveys in each of four regions (*SNNPR, Tigray, Oromia, Amhara*) and the two city administrations (Addis Ababa and Dire Dawa) of the country. Taken together these four regions and two city administrations comprise about 90 percent of the total population of Ethiopia and, thus, would generate representative and generalizable data.

Within each of the four regions (*Amhara, Oromia, SNNP and Tigray*) the zones were selected by purposive sampling. Within each selected zone, three categories of villages were again selected. The three categories were as follows:

1. Urban villages within the selected zones
2. Rural villages accessible and within the catchment areas²¹ of the selected health units where the exit interviews are to be conducted.
3. Rural villages within the catchment areas (but not accessible) to the selected health units

A standard method of power calculation was used to determine the sample size for the household survey. According to the power calculation, a minimum of 2,400 households was required to provide the necessary confidence limit for generalization. The calculated household sample size for the household survey was distributed among the regions (as well as between rural and urban) based on their population size as proportion to the country's total population.

**Table 5.1 Sample distribution for Households for WTP survey
(Based on CSA data for 1998/99)**

Region	Population								
	URBAN			RURAL			TOTAL		
	Population	% of total	HH Sample	Population	% of total	HH Sample	Population	% of total	HH Sample
Addis	2,424,000	4.4%	124 (5.0%)				2,424,000	4.4%	124 (5.0%)
Amhara	1,604,020	2.9%	91 (3.7%)	14,245,980	25.4	575(23.3%)	15,850,000	28.3%	666 (26.8%)
Dire Dawa	219,004	0.5%	16 (0.6%)	86,996	0.2		306,000	0.6%	16 (0.6%)
Oromia	2,520,843	4.5%	151 (6.1%)	19,173,157	34.2	844(33.7%)	21,694,000	38.7%	984 (39.9%)
SNNP	911,113	1.7%	53 (2.1%)	11,220,887	20.0	438(17.7%)	12,132,000	21.7%	496 (20.0%)
Tigray	592,845	1%	25 (1.1%)	3,000,155	5.4	162 (6.6%)	3,593,000	6.4%	187 (7.7%)
Total	8,271,825	15%	460(18.6%)	47,727,175	85	2,013(81.4 %)	55,999,000	100%	2,473 (100)

To select the actual household to be interviewed, the household survey enumerators contacted the relevant *warda* and *kebele*²² officials and secured the list of households for the respective *kebeles*. Then using that list as a sampling frame, they randomly selected the given number of households from each *kebele*.

Region of Ethiopia: Research Results and Analysis," Addis Ababa, The ESHE Project/HCFPS/MOH, September 2001.

²¹ "Accessible and within catchment area" refers to, according to MOH criterion, population living within 12 kilometers of a health unit (without any major geographic barrier).

²² Each region is administratively comprised of zones, that are comprised *wardas*, that are comprised of *kebeles*.

5.2.2. Exit survey:

The exit survey of outpatients at health facilities was conducted to ask direct questions of patients about their willingness and ability to pay for health services, and about the role their perceptions of the quality of services played in their willingness to pay. The questionnaire items included questions about why the respondents came to the particular health facility, what services they received, and what the visit cost them (including travel costs and waiting times). An inventory of the facilities was also made to collect basic data about the physical, staffing, and service characteristics of each facility.

This part of the survey was aimed at providing a wealth of descriptive data linking utilization, perceived quality of services, and prices. Because it was administered in a variety of geographical areas and settings (private as well as public), it was also valuable in capturing differences in patient behavior associated with different provider/treatment settings.

The general sampling approach for the exit survey was to include about 5% of the health facilities in each region subject to a minimum of one for each category from each region. The sample was made representative by all categories (public, NGO and private). Within the overall stratification framework, selection of any facility was random. The following were the number of government and NGO facilities in each region that were used as a sampling frame:

Table 5.2 Sampling strategy for health facility exit surveys

Region	Total Number ²³		Sampled			
			Institutions ²⁴		Respondents	
	N	%	N	%		
Addis Ababa	73	3.1	13	11.6	278	12.6
Amhara	604	25.6	29	25.9	591	26.7
Dire Dawa	19	0.8	5	4.5	82	3.7
Oromia	940	40.0	33	29.5	564	25.5
SNNPR	477	20.3	24	21.4	477	21.6
Tigray	243	10.2	8	7.1	221	10.0
Total	2356	100	112	100.0	2213	100.0

In conducting the exit interviews, the number of patients to be interviewed was allocated to each category of institution. The interviewers approached patients attending the health units at the end of their visits and, upon receiving their consent to be interviewed, the interviewers filled in the respondents' answers to the survey questions.

²³ These figures are for government and non-government (NGO) outpatient facilities (for 1999) as provided by the respective regions.

²⁴ The fact that higher percentages are seen in Addis, Dire Dawa and Oromia was because the survey has included private facilities that were not included in the sampling frame total.

The questionnaires for the interview surveys (both household survey and the exit survey) had been pre-tested in *kebeles* and health facilities in Addis Ababa and necessary adjustments were made based on the results before administering them in the study.

5.2.3. Focus Group Discussions:

Three focus groups in Addis Ababa and three focus groups in Dire Dawa were conducted. A total of 27 focus groups conducted in the other regions, with at least one focus group conducted for about every three million population. This resulted in a total of 33 focus groups.

As part of the present study, there was also an interest by Pathfinder International in assessing the prospects of sustainability of the provision of reproductive health services in a group of missionary facilities that are concentrated in the Southern Nations, Nationalities and Peoples Region (SNNPR). For this reason, it was necessary to over-sample study subjects in this particular region where eight focus group discussions were conducted.

The focus groups were selected by discussing with the relevant *warda* and *kebele* officials. The focus groups were conducted with people of both higher and lower socio-economic status. In addition, discussions with females and males were conducted separately. The total of 33 focus groups were conducted, each consisting of 7 to 10 members who were adult Ethiopian citizens (ages 18 to 55 years) selected at random to represent a cross-section of the population within the study regions. Each group was made from participants who were of the same socio-economic status (low or high) and were of the same sex. An attempt was made to make the composition of focus groups as representative as possible by conducting each focus group (even rural focus groups) in local area commercial marketplaces where citizens came to purchase goods.

After forming the groups, a one to two-hour session was conducted for each using a structured focus group guide and preliminary questionnaire to collect basic demographic information about the participants. The structured focus group guide was used to provide the framework for the session by featuring a series of open-ended questions that were asked by the facilitators.

The group settings were quiet and comfortable places and in some cases refreshments were served to participants. Information was documented through tape recording and note taking. Later on, the facilitators transcribed and wrote the reports of the focus group discussions.

Table 5.3 Characteristics and Distribution of Focus Groups Conducted

	Region	Zone	Wereda	Place	Socio economic status	Urban / Rural	Sex	Participants
1.	SNNP	Hadya		Shone	Low	Rural	M	7
2.				Shonne	Low	Rural	F	7
3.				Hosaana	High	Urban	M	8
4.		Sidama		Awasa	Low	Urban	F	7
5.				Yirgalem	High	Urban	M	8
6.		N. Omo		Welayta zuria	Low	Rural	M	10
7.				Arba minch town	Low	Urban	F	9
8.				>>	High	Urban	M	7
9.	Oromia			Gambo	Low	Rural	M	8
10.				Sire	Low	Rural	M	7
11.				Nekemt town	High	Urban	M	10
12.				Nekemt town	Low	Urban	F	7
13.				Jimma town	High	Urban	M	5
14.				Jimma town	Low	Urban	F	7
15.				Limu Kosa	Low	Rural	M	6
16.				Asela	High	Urban	M	8
17.				Dhera	Low	Rural	M	8
18.				Bakoji	Low	Rural	F	8
19.	Amhara	E. Gojam	Gazamen	Debere markos	Low	Urban	M	10
20.		W.Gojjam	Bahir Dar	Bahir Dar	High	Urban	F	7
21.		E. Gojam	Dejen	Yetnora kebele	High	Rural	M	10
22.		S. Gonder		Addis zemen	Low	Rural	M	7
23.		N. Wollo		Woreta	Low	Rural	F	8
24.		N. Wollo		Woldia	High	Urban	M	6
25.	Tigray	Southern		Mekele town	High	Urban	M	7
26.		Eastern zone		Worko	Low	Rural	M	10
27.		Southern		Qiuha	Low	*	F	8
28.	Addis Ababa			Kotebe health center	Low	Rural	M	5
29.				Marie Stopes Merkato	Low	Urban	F	7
30.				Woreda 17 HC	High	Urban	M	7
31.	Dire Dawa			Dire dawa town	Low	Urban	M	6
32.				>>	High	Urban	M	6
33.				>>	Low	Urban	F	7

5.2.4. The Contingent Valuation Modules

One of the major objectives of this study was to observe, in the Ethiopian context, how households evaluate the existing public health service delivery system and to assess their willingness to pay for specified improvements in these services. The proposed improvements in service delivery included both curative and preventive services. The proposals were presented for respondents both in the household survey and in exit interview survey.

The main modality for eliciting willingness to pay responses, which was used in both the household and exit surveys, involved offering a certain price for a given improvement in

service provision and, depending on households' response to the initial price, eliciting the maximum willingness to pay by asking a follow-up question. Thus, the proposal was structured in three stages so that a respondent was first offered a fixed price for a specific type of service and asked to respond by saying either 'yes' or 'no'. Then in a follow-up question, the respondent was asked to state the maximum price he/she was willing to pay. In the event a respondent said he/she was not willing to pay at all, a third question was posed which asked the main reason for the refusal.

This discrete choice format with an open-ended follow-up question attempted to determine WTP prices for improvements in four categories of services. These categories were i) a reduction in waiting time (by half) associated with reception and consultation, ii) an improvement in the skill of health personnel in the form of "courteous as well as more skilled reception and consultation", iii) availability of all the necessary investigations in the facility, and iv) availability of all the necessary treatments and drugs in the facility.

For each category of specific proposed improvements described above, different sets of prices were presented to the interviewee depending on the kind of facility the individual visited during the interview (for the exit survey) and the closest government facility (for the household survey).

The interviewees were asked if they would be willing to pay the offered price in addition to what they had actually paid for the particular service. The prices offered were based on actual unit cost estimates for public owned health institutions in Ethiopia (PHRD, 1997; BASICS, 1998). In order to incorporate, implicitly, the cost implications of the suggested improvements, each unit cost estimate was increased by 50 percent, which was then offered as the initial price during the valuation process.

5.2.5 Pre-testing and Survey Administration

The survey instruments (including the focus group guide) were pre-tested during the training of survey interviewers and focus group facilitators which was conducted for three days in July, 2000. The interviewers for the household survey were social science graduates while the interviewers for the exit interviews and the facilitators for the focus group discussion were health professionals interviewers and the focus group discussions. The actual interviews took place during the first three weeks in August, 2000.

5.3 Analytical Approaches

5.3.1 The Household Survey

Two types of approaches were used in the analysis of the household survey. The first analytical method used to assess willingness to pay was to estimate parameters modifying the independent variables postulated as determinants of demand using a multiple regression model explaining the fee level that was the maximum willingness to pay.²⁵

²⁵ It was originally intended that an econometric estimate elasticity of demand for various types of outpatient providers' services would be obtained using a two-stage health expenditure model. The model specification was

The second analytical method used was tobit regression to estimate the reported willingness to pay by respondents for the four hypothetical quality improvements. In addition, the same method was used to estimate the willingness of patients to pay alternative prices (i.e., higher prices) for family planning, pregnancy-related services, and childhood health and immunization services.

5.3.2 Exit Survey

Patient and facilities surveys were designed to develop clinic and patient profiles for particular kinds of clinics, gathering data on distance and time traveled, waiting times, travel costs, and fees paid for services received. These data were used to generate descriptive information showing some demographic and symptom-related characteristics of people utilizing health services, the fees paid for the utilized services, and the consumers' levels of satisfaction with services received. The exit surveys were conducted in facilities in the same areas where focus groups and household surveys were conducted. This was made to facilitate comparison of the results of the two approaches, and to enable the gathering of data on the physical and service characteristics of the facilities patronized by the households responding to the survey.

5.3.3 Focus Groups

The focus group discussions were designed to provide the MOH with empirical, qualitative data on questions in three areas:

- Participants' perceptions of quality of care at MOH facilities, as compared to their perceptions of care available at private facilities, and of that which is desired or preferred;
- Participants' willingness to pay for services at MOH facilities, as compared to their willingness to pay for services at available alternative facilities in the private sector, including willingness to pay for primary care, preventive care, and reproductive health services, as well as for curative care; and.
- Participants' perceptions about the major factors generating "quality of care" and their willingness to pay more for particular kinds of quality improvements related to those factors.

Except for the quantitative description of the characteristics of the participants of the focus groups and their demographics, the results of the focus groups are presented in qualitative terms as a synthesis of the groups' discussions, as an interpretation of all that was said. The main contributions of focus groups were the insights derived from the conversations with participants and the conceptual interpretations that were made.

to be multinomial logit with the dependent variable being the choice of provider type. However, the data collected were not adequate to support the use of the estimation approach, and the alternative was used instead.

5.3.4 The Contingent Valuation Model

Within the general framework of utility maximizing behavior, to measure coefficients of the variables hypothesized to influence WTP, we hypothesize the existence of a willingness-to-pay function in which a set of independent variables determine the maximum WTP for a given service with given quality characteristics. The independent variables reflecting both individual specific characteristics and attributes specific to the health care facility whose service is the subject of valuation.

More specifically, for an individual i , we hypothesize that:

$$WTP_i = X_i' A + \mu_i,$$

Where X_i represents a vector of independent variables, A is a vector of unknown parameters and μ_i is stochastic term assumed to be normally distributed with mean 0 and variance σ^2 .

A priori, some of the variables that are presumed to influence WTP, such as income level, perception about the quality of service delivery in existing health care institutions, and payments for services in the current setup were expected to yield significant coefficients.

Since WTP responses are greater than or equal to zero, the distribution may be perceived as censored from the bottom, i.e. from zero. An appropriate approach to treat such a dependent variable is a variant of the Tobit model.

This approach implies that there is a qualitative difference between answers with zero WTP and those with positive WTPs. Further, these qualitative distinctions are carried forward into a second model that attempts to explain variations among respondents' WTP results based on those individuals characteristics and variables representing service delivery.

To operationalize the estimation process, the model chosen here is the Tobit with selectivity model (Green, 1995). In specifying the model, where Z^* is unobserved variable,

$$\begin{aligned} Z^* &= \alpha' v + \mu \\ WTP^* &= \beta' X + e \\ e, \mu &\sim N(0, 0, s_e^2, s_\mu^2, \rho) \end{aligned}$$

The observed variable is

$$\begin{aligned} Z^* &= 0 \text{ if } Z^* \leq 0, \text{ and} \\ Z^* &= 1 \text{ if } Z^* > 0. \end{aligned}$$

Also $WTP^* = 0$ if $Z^* \leq 0$, and $WTP^* = WTP$ if $Z^* > 0$.

6 Results

6.1 The Household Survey

6.1.1 General Household Characteristics and Determinants of Provider Choice

There were a total of 2,473 households comprising 13,932 individuals included in the household survey. Table 6.1 below shows values for some of the important characteristics of the sampled households. The average number of persons per household was 5.6. With regard to reported household morbidity, about 10% of the respondent individuals reported sickness within two months prior to the survey. Of all those reporting a sickness during that period, the proportion that sought outside medical assistance was 84%, making the rate of health services utilization 8.4% over the two months. The rate of hospitalization during the twelve months prior to the survey was only 1%.

Table 6.1 Sample statistics on household survey respondents (Rural versus Urban)

	Total Sample		Rural (2,013)		Urban (460)	
	Mean	Median	Mean	Median	Mean	Median
Mean total household size	5.63		5.81	5.00	4.90	5.00
Mean monthly total household expenditure	291.28	202.00	238.04	186.50	472.66	306.85
Mean health expenditure for last sickness	60.00	20.00	57.60	20.00	67.39	22.50
Monthly health expenditure	15.4	5.0	13.26	6.00	16.5	5.00
Educational status (10 years and above) – Illiterate			40.25 %		14.8%	
Mean age of individual			27.3%	26.5%	30.4	28
Morbidity within the last two months	10%		9.9%		10.2%	
Hospitalization (last 12 months)	1.1%		1.05%		1.6%	
Percentage of individuals with health insurance	1.9%		-		1.9%	
Percentage of <i>eders</i> supporting for medical care			21.5%		13.1%	
Mean distance to recently visited unit (walking hrs)	2.7	1.0	4.54	1.00	2.24	0.46
Mean distance to nearest facility (walking hours)	1.2	0.4	2.93	2.00	1.45	0.25
Waiting time at the recently visited facility (hours)	6.4	3.0	6.00	3.0	7.88	3.00

Table 6.2 Sample statistics on household survey respondents (By Region)

	Tigray (982)		Amhara (3,428)	
	Mean	Median	Mean	Median
Mean total household size	5.22	5.00	5.1	5
Mean health expenditure for last sickness	36.81	12.00	62	15
Hospitalization (last 12 months)	1.01	1.00		
Mean distance to recently utilized facility (walking hrs)	8.38	3.00	1	1
Mean distance to nearest facility (walking hours)	2.4	1.3	4	1
Waiting time at the recently visited facility (hours)	5.05	5.00	6	3
	OROMIA (5,570)		SNNP (3,267)	
	Mean	Median	Mean	Median
Mean total household size	5.5	5	6.7	6
Mean health expenditure for last sickness	61	21	52	25
Mean distance to recently utilized facility (walking hrs)	2.6	1	3.2	2.3
Mean distance to nearest facility (walking hours)	2.6	1	2.2	1
Waiting time at the recently visited facility (hours)	7.3	4	4	3
	Dire Dawa (617)		Addis (68)	
	Mean	Median	Mean	Median
Mean total household size	4.25	4	5.2	4.5
Mean health expenditure for last sickness	48	7.5	100	36
Mean distance to recently utilized facility (walking hrs)	0.2	0.2	.2	.2
Mean distance to nearest facility (walking hours)	0.2	0.2	.1	.1
Waiting time at the recently visited facility (hours)	1.6	2	13	2.5

6.1.2. Household Total and Health Expenditure

The mean reported total monthly household expenditure on all items was birr 291.28 (US\$35.5)¹. The share of total expenditure devoted to health was 5.3% of the total, and ranged from 4.8% in SNNPR to 7.9% in Amhara Region.

Table 6.3 Reported Mean Household Monthly Expenditure²⁶

	Food		Health		Education		Total Budget	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Addis Ababa	370.46	300.00	51.33	50.00	165.54	37.00	800.74	600.00
Amhara	153.17	120.00	20.10	10.00	15.38	5.00	254.76	200.00
Dire Dawa	397.50	370.00	28.70	11.00	67.50	30.00	580.68	485.00
Oromia	170.78	150.00	11.58	3.00	21.68	10.00	213.64	154.50
SNNP	169.86	145.00	17.35	8.00	15.76	7.00	362.33	200.00
Tigray	161.97	150.00	16.76	10.00	32.58	10.00	208.98	150.00
Whole Sample	177.50		15.42		24.70		291.28	202.00

6.1.3. Provider Choice

Since the major focus of this study was to assess the public's willingness to pay for improvements in service provision in public facilities, we can begin by observing the

¹ US\$ 1.00=Birr 8.2; or Birr 1.0 = US\$0.12.

²⁶ There is a tendency to under-report household expenditure and budget on the part of respondents. Therefore, one has to interpret the figures in this table with reservations.

prevalence of public health delivery facilities in households' choices. As indicated in Table 6.4 below, out of the total number of households that gave a valid response to the question 'What was the facility you visited most recently for treatment?' (excluding the 16% of the total who resorted to informal care and self-treatment) about 76% reported visiting a government-owned facility. Only 9% of the respondents seeking formal treatment visited not-for-profit NGO facilities and the rest (16%) visited private-for-profit facilities. Table 6.4 shows little difference between urban and rural areas.

Table 6.4 Type of facility visited most recently by household survey respondents

Type of Facility	Total Sample				Rural				Urban			
	Reported Sick		Sought Treatment		Reported Sick		Sought Treatment		Reported Sick		Sought Treatment	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Self, informal	223	16	0	0	202	18	0	0	21	8	0	0
Govt	874	63	874	76	695	62	695	75	179	70	179	76
NGO	101	7	101	9	87	8	87	9	14	6	14	6
Private	181	13	181	16	139	12	139	15	42	16	42	18
Total	1,379	100	1,379	100	1,123	100	1,123	100	256	100	256	256

6.1.3.1. Factors Affecting Provider Choice

Table 6.5 below shows the most important reasons mentioned by the respondents for choosing the particular provider for their most recent visit. Perceived effectiveness of care (including staff courtesy) seemed to be the most important reason for choosing a provider. About 52% of interviewees perceived the quality of care they received as good and 11% considered it to be very good. On the other hand, about a quarter of surveyed households considered the quality of care they received at the facility they visited very recently as below average.

Table 6.5 Main Reason for Last Action/Choosing provider*

Most Important Reason	Total		Rural		Urban	
	Freq.	%	Freq.	%	Freq.	%
Perceived effectiveness of care	303	23.7	232	21.6	71	34.4
Did not have money to go elsewhere	226	17.6	214	20.0	12	5.8
Geographic accessibility	209	16.3	193	18.0	16	7.8
Considered illness self-limiting**	262	20.5	221	20.6	41	20.0
Was not too crowded	101	7.9	63	5.9	38	18.5
All other means failed	84	6.6	77	7.2	7	3.4
Did not know anywhere to go	48	3.8	37	3.4	11	5.3
Referred from other units	48	3.8	38	3.5	10	4.6
Total	1,281	100	1,075	100	206	100

* Even though the number of individuals reporting sickness within the specified period was 1,379, only 1,281 individuals responded to this particular item in the questionnaire.

** For those who resorted to informal care and self-treatment

Table 6.6 Evaluation of the level of quality of care in the last visited facility

	Total Sample		Rural		Urban	
	Frequency	%	Frequency	%	Frequency	%
Very poor	103	8.2	74	6.9	29	15.9
Poor	215	17.2	182	17.0	33	18.0
Neutral	156	12.4	119	11.1	37	20.2
Good	648	51.7	616	57.5	32	17.5
Very good	132	10.5	80	7.5	52	28.4
Total	1,254	100.0	1,071	100.0	183	100.0

Comparison of respondents' perceived quality of care by provider revealed that 30% of households who visited a government facility considered the quality of care they received there to be below average, compared to only 14% of those who visited NGO facilities and 12% of those who received care from private facilities. This can be seen from table 6.7 below:

Table 6.7 Respondents' perception of quality at different category of providers

	Government		NGOs		Private		Total	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Very poor	94	10%	5	4%	6	3%	103	8%
Poor	188	20%	11	10%	18	9%	215	17%
Neutral	132	14%	19	17%	28	14%	156	12%
Good	432	46%	56	51%	100	50%	648	52%
Very good	94	10%	23	21%	50	25%	132	11%
Total	940	75%	113	9%	201	16%	1,254	100%

Geographic accessibility of the facility was also among the most important reasons for choosing a provider. The median³ travel time for households to reach the facilities visited most recently was about an hour, which also happened to be equal to the travel time of the sub-group that relied on walking to reach these facilities. The latter group constituted about 87% of the sample.

Asked about the proximity of a government outpatient facility, households responded that on average⁴ the nearest government facility was reached after 2.6 hours of travel time (irrespective of mode of transport used) (see Table 6.8). About 88% of the respondents walked all the way to the facilities with an average travel time of 2.3 hours.

People who visited government facilities also had longer average travel times compared to those who visited not-for-profit NGO facilities. Private facilities were the closest of the three categories, with the reported average travel time being about 1.7 hours.

⁴ Average travel time was about 2 hours 20 minutes

Table 6.8 Reported distance (in hours) from home of the most recently visited facility

Type of Facility	Mean			Median			% of Total N
	Urban	Rural	Total	Urban	Rural	Total	
Government facility	2.579	3.194	3.101	0.500	1.000	1.000	72.5%
NGO facility	1.641	2.050	2.002	0.250	1.000	0.620	11.0%
Private facility	1.049	1.711	1.550	0.250	1.000	1.000	16.5%
Total	2.184	2.896	2.782	0.330	1.000	1.000	100.0%

As might be expected, government facilities had experienced high demand for services, thereby requiring an average waiting time of 7 hours before a patient could see a practitioner. This waiting time was 250% larger than the corresponding waiting time at private facilities (the mean value of which was 2.7 hours). Waiting time at NGO facilities was also found to be lengthy with a mean value of 6.2 hours.

6.1.3.2. Regression Analysis of Provider Choice

To look at the independent effects of the factors that were associated with respondents' choice of providers, regression analysis was done. In the first part, the binomial logit regression was used to analyze the factors that determine the respondents' decision whether or not to seek medical treatment in times of illness. Then the multinomial regression was employed to look at how these factors affect people's choice among the different categories of providers given the decision to seek outside medical assistance.

Table 6.9 Bi-Nomial Logistic Regression of Seeking Outside Medical Assistance (HH Data)

Variables in the equation	B	S.E.	P-value
AGE	-.003	.005	.473
Amhara	-.585	.319	.067*
Absence from work	.416	.150	.006***
Education	.293	.071	.000***
Male	-.105	.148	.479
Income	.002	.000	.000***
Family size	-.027	.027	.322
Oromia	.172	.327	.599
SNNP	-.925	.303	.002***
Tigray	.003	.496	.995
Married	-.080	.185	.665
Constant	1.255	.450	.005***

- .. $P < 0.01$
- .. $P < 0.05$
- .. $P < 0.1$

As can be seen from the above table, having higher educational level seemed to raise the probability of seeking outside medical assistance during the time of illness. Higher monthly income of head of the household and absence from work due to illness (a proxy for severity of illness) were significantly and positively associated with the probability of seeking outside medical assistance. In addition, inhabitants of SNNP and Amhara regions were found to be less likely to seek outside medical assistance.

Table 6.10 Multinomial Regression of provider choice (Household survey)

Facility chosen	Variable	Coefficient	Standard error	P-value
Informal/self	Intercept	2.21	1.970	.261
	Urban	-3.89	1.287	.002
	Age	-2.523E-0	.026	.331
	Male Gender	.35	.674	.595
	Married	.86	.916	.347
	Education	-.37	.277	.178
	Income	2.946E-0	.001	.032
	Family Size	-2.106E-0	.130	.871
	Travel Time	-.40	.206	.047
	Amhara Region	-.79	1.358	.558
	SNNP Region	-.99	1.152	.388
	Tigray Region	8.555E-0	11018.053	1.000
	Oromia Region	1.78	1.558	.252
	Registration Fee	-.60	.249	.015
	Consultation Fee	.14	.091	.118
Government	Intercept	3.75	1.731	.030
	Urban	-1.52	.793	.055
	Age	-2.520E-0	.017	.880
	Male Gender	.54	.589	.354
	Married	.36	.658	.577
	Education	-.12	.216	.555
	Income	1.440E-0	.001	.247
	Family Size	-.27	.114	.015
	Travel Time	1.250E-0	.030	.673
	Amhara Region	-1.48	1.074	.168
	SNNP Region	-1.99	1.018	.050
	Tigray Region	14.63	7154.839	.998
	Oromia Region	.29	1.586	.830
	Registration Fee	-.30	.132	.020
	Consultation Fee	3.716E-0	.080	.641
NGO	Intercept	3.04	2.174	.161
	Urban	-2.57	1.228	.036
	Age	-4.168E-0	.034	.215
	Male Gender	.97	.812	.231
	Married	.92	1.086	.396
	Education	-7.966E-0	.304	.794
	Income	-2.181E-0	.002	.912
	Family Size	-.27	.161	.083
	Travel Time	2.303E-0	.041	.576
	Amhara Region	-2.58	1.566	.099
	SNNP Region	-2.86	1.223	.019
	Tigray Region	-1.59	.000	.
	Oromia Region	1.25	1.578	.428
	Registration Fee	-.34	.171	.045
	Consultation Fee	.15	.091	.089
Test Fee	1.635E-0	.036	.646	
Medication Fee	-7.826E-0	.013	.547	

When one looks at the results of the multinomial logit analysis of provider choice on the household survey, one sees that urban residents were significantly more likely to choose private providers over other types of providers. This is likely to reflect the tendency of private providers to be more concentrated in the urban areas. On the other hand, the main reason for resorting to informal and self-care did not seem to be associated with inability to pay since income was positive and significant on people's preference of informal/self care over private providers. This may reflect an assessment that some diseases are self-limiting, in addition to the perceived efficacy of available care that could have led people to resort to self-care.

6.1.4. Contingent Valuation Results

The first item in the hypothetical market model was concerned with a proposal to reduce the waiting time that patients encounter before seeing a practitioner. The proposal asked respondents to give their maximum willingness to pay for a visit if waiting time at government facilities were reduced by half. The second proposal was to improve the skills of the health personnel at public facilities. The third proposal was to better equip the government facilities with the necessary instruments, tests, and procedures. Finally, the fourth proposal was to ensure the consistent availability of drugs at a nearby government facility.

6.1.4.1. WTP for reduced waiting time

Based on the WTP survey, the median WTP prices of visits at public health facilities (if waiting time were reduced by half) were Birr 5, Birr 13 and Birr 16 for clinics, health centers and hospital OPDs, respectively. These results indicate that households would like to see the capacities of government health facilities improved and that they were willing to pay higher prices if they were (e.g., compare these WTP prices with prices actually paid as seen in Table 6.12). There was also evidence of strong positive correlation between reported average waiting time and WTP, thereby suggesting that those households who have experienced long waiting times at government health facilities were proportionately more willing to pay higher prices for shorter waiting times.

Table 6.11 Maximum WTP for visit if waiting time is reduced by half

Statistic	Type of facility		
	Clinics	Health centers	Hospitals (OPD)
Mean (in Birr)	3.9	7.9	10.2
Median (in Birr)	5.0	13.0	16.0

Lengthy waiting times do not, however, seem to be the most important item on the agenda for improvement from the public's point of view. Only 10% of those who reported dissatisfaction with the service delivery process in their most recent visit to a health facility identified the cause to their dissatisfaction to be lengthy waits. For those who used government-owned facilities, a high percentage (about 17%) felt the inconvenience of lengthy procedures was a cause for dissatisfaction. Residents of urban areas also seem to place higher value on reduced waiting time. They therefore reported higher WTP for improvement in waiting time

than did residents of rural areas. (See the annex for the breakdown of WTP summary indicator by region).

Table 6.12 Mean and median prices paid for visit

Where did you go for your last action?	% Not Paying	Payers's mean	Over all Mean	Median	% of Total N
Admitted to government hospital	30%	5.8	4.1	3	7%
Service from pharmacy	0%	2.9	2.9	0	10%
Visited government health station/health center	52%	3.4	1.4	1	34%
Visited NGO health station/health center	47%	3.7	2.0	2	9%
Visited non-MD private clinic	0%	5.4	5.4	5	9%
Visited MD private clinic	0%	10.7	10.7	10	13%
Visited hospital OPD	28%	4.0	2.8	5	6%
Home made medicines and others	0%	-	-	-	12%

On the other hand, there was no significant association between what households' paid for a visit during their recent visit (when a member of the household went to seek treatment) and what they offered as their maximum WTP for a visit. The only exception in this regard was for those who visited private facilities. The study indicated that, of respondents who said they took action during their last health problem, about 30% went to government clinic or health center. During their visits of these facilities, the mean price paid for a visit was Birr 3.42, which was slightly below the average WTP for visiting clinics reported in Table 6.11 above. However, there was a big difference between the mean values for the WTP and the price paid in the most recent encounter.

6.1.4.2. WTP for skill improvement

The second major area of valuation proposed by the study was concerned with staff quality. Respondents were asked to reveal their maximum WTP for an improvement in the skill of the personnel posted in public health facilities. More precisely, the improvement addresses the deployment of better-qualified health professionals in government facilities so that patients could be treated more courteously and effectively. The WTP results obtained from the survey are summarized in table 6.13 below.

Table 6.13 Summary indicators on WTP for visit if improvement are made to the skills of health care personnel

Type of facility	Mean	Median	% of Total N
Clinics/health stations	4.7	5.0	49%
Health centers	9.1	9.0	34%
Hospitals (OPD)	10.5	10.0	17%

The median WTP for a visit, assuming clinics were to upgrade the skill of their personnel, was Birr 5. The corresponding WTP prices for health centers and hospital OPDs were Birr 9 and Birr 10 respectively. One interesting implication of this result is that people, on the average,

seemed to value skill improvements more than shorter waiting times as indicated by a higher mean WTP for this category.

The high degree of dissatisfaction with service delivery in government-owned facilities may partly be explained by patients' perceiving that the staff has inadequate knowledge and skills. When asked to state the reason why households considered service delivery at the public facilities to be below average (for those who rated the service delivery as below average), close to 30% responded by saying that the 'skill and knowledge of health workers are not good enough'.

Similarly, among those households who had very recent experience of the public health care delivery system (clinics and health centers in particular), close to 14% expressed dissatisfaction associated with the skill of personnel or treatment during consultation and reception. The overall indicator of service quality (measured on a five-point scale of *very poor, poor, neutral, good and very good*) also indicated that those who considered the existing service quality as above average were willing to pay a relatively smaller amount for the improved service than those who considered the service to be below average.

6.1.4.3. WTP for improvement in investigative services

The third major area of valuation was concerned with investigative services. Again, the results of improved service delivery and the corresponding WTPs are summarized below. The median WTPs, assuming the facilities were equipped with all the necessary investigative capacity required for that level of facility, was Birr 5 both for clinics and health centers, and Birr 9 for hospital OPDs.

**Table 6.14 Mean and median WTPs
for availability of necessary investigations at public facilities**

Type of Facility	Mean	Median
Clinics	5.6	5.0
Health centers	6.6	5.0
Hospital	8.4	9.0

Again some comparison can be made regarding other features of households and their WTP as expressed in the valuation summary above. In this regard, the first question may be: what amount did households pay for investigative services in their last demand for the service? As indicated on Table 6.15 below, patients who visited government health stations/centers paid a median price of Birr 3 for the existing quality of investigative services. The price paid in the outpatient departments of hospitals was much higher (median = Birr 10).

Secondly, the demand for improved services and the corresponding higher valuation of the proposed improvement may be associated with the real perception of the existing quality of services. Based on the evaluation of households, which had very recent experience with the health care delivery system, roughly 15% of those who considered the existing service as unsatisfactory based their verdict on 'inadequate availability of diagnostic facilities'.

Table 6.15 Actual payments for investigative services (tests) in the most recent demand for these services by households

Where did you go for your last action?	% Not Paying	Payers' Mean	Over all Mean	Median	% of Total N
Admitted to government hospital	46%	21.4	11.6	10	7%
Service from pharmacy	0%	11.9	11.9	2	10%
Visited government health station/health center	70%	10.3	3.2	3	34%
Visited NGO (HS/HC)	58%	15.4	7.2	9	9%
Visited non-MD private clinic	0%	10.7	10.7	10	9%
Visited MD private clinic	0%	25.1	25.1	17	13%
Visited hospital OPD	53%	16.3	7.7	10	6%
Home made medicine and others	0%	-	-	-	12%

6.1.4.4. WTP for improvement in drug availability

A proposal to improve consistency in drug availability was also presented for valuation. The results suggest that patients who sought treatment at clinics were willing to pay a median price of Birr 25 per visit for consistent availability of drugs. The corresponding WTP prices for health centers and hospital OPDs were Birr 37 and Birr 36, respectively.

Table 6.16 Mean and median WTP for drugs if the drugs are made available at the facilities

Type of facility	Mean	Median	% of Total N
Clinics	25	25	49%
Health centers	28	37	34%
Hospitals	41	36	17%

Apparently, consistent and sufficient drug availability is an important indicator of service quality. For those who visited public facilities in the recent past, about 37% were not satisfied with the service delivery because drugs were not consistently available. Hence, potential consumers may be expected to put a high value on improvements in the consistent availability of drugs in nearby public facilities. Compared to what households paid on their recent visit to health centers or clinics (see Table 6.17 below), the maximum WTP for public facilities were generally on the high side. The median price paid for medication by those who visited a government health center/clinic was only Birr 13. Similarly, the median price paid for medicines for those who visited hospital OPDs was about Birr 19.

Table 6.17 Actual payments for drugs in the most recent demand for these services by households

Where did you go for your last action?	% Not Paying	Payers' Mean	Overall Mean	Median	% of Total N
Admitted to government hospital	30%	63	44	32	7%
Service from pharmacy	0%	24	24	10	10%
Visited government health station/center	42%	27	16	13	34%
Visited NGO (HS/HC)	32%	41	28	18	9%
Visited non-MD private clinic	0%	34	34	18	9%
Visited MD private clinic	0%	57	57	34	13%
Visited hospital OPD	27%	63	46	19	6%
Home made medicines and others	0%	-	-	-	13%

6.1.4.5. Multivariate Regression of WTP for Quality Improvements

This section will attempt to identify the determinants of reported WTP results in a regression framework. Since WTP responses are greater or equal to zero, the distribution may be perceived as censored from the bottom, i.e. from zero. An appropriate approach to treat such a dependent variable would then be a variant of the tobit model. Furthermore, valuation can be perceived as a two-stage process. The first stage involves the decision whether or not to pay the asking price. The second stage, for those who decide to pay, involves deciding how much to pay.

The resulting specification is then estimated using the Heckman two-stage estimation method.

Table 6.18 Definition of variables in the model (HH data)

Variable name	Definition of variable
Age	The age of the respondent in years
Education	Illiterate = 1; read & write = 2; elementary = 3; secondary = 4; college & above = 5.
Gender	Male = 1; Female = 0
Hh_size	The number of people residing in the household.
Marital	Married = 1, Else = 0
Eva_gov	Evaluation of quality of service provision in government owned health care facilities. Very poor = 0, Poor = 1, Neutral = 2, Good = 3, Very Good = 4.
Wait_gov	Average waiting time a patient spends in a government facility before seeing a practitioner (in minutes)
Expenditure	Estimate of average monthly expenditure of the household.
Cattle	Cattle = 1 indicates the household owns cattle, else = 0
Start-time	Initial price households were asked to pay for visit if waiting time is reduced.
Start-skill	Initial price households were asked to pay for visit if skill of personnel is improved.
Start-inves	Initial price households were asked to pay for investigation if the service is improved.
Start-drug	Initial price households were asked to pay for drugs if drug availability is improved
Amhara	AMHARA = 1 indicates respondent is resident of AMHARA region, else = 0.
Oromiya	OROMIYA = 1 indicates respondent is resident of OROMIYA region, else = 0.
Snnpr	SNNPR = 1 indicates respondent is resident of SNNPR region, else = 0.
Tigray	TIGRAY = 1 indicates respondent is resident of TIGRAY region, else = 0.
Urban	SNNPR = 1 indicates respondent resides in urban areas, else = 0.

From results in Table 6.19, one observes that, the only factor that seemed to determine the maximum WTP for a visit, given that waiting time would be reduced by half, was the price that was offered at the start of the valuation process.

On the other hand, other than the effect of the offered price, respondents' maximum WTP for a visit if the skill of health care personnel were improved was influenced by the perception of households about the quality of service in existing government health care facilities as well as their average household expenditure levels. Since the latter is a proxy for income, it evident to see that ability to pay was also being reflected in the WTP, as expected.

Regarding improvements in investigative services, the results indicated that the higher the income (expenditure) of a household the more valued the improvements were. Similarly, residents of Amhara, Oromia and SNNP regions placed higher values on this category of service improvement than residents of other regions. Urbanites reported higher WTP prices compared to residents of rural areas.

**Table 6.19 Analysis of WTP bids in the household survey
Tobit results of the Heckman two stage estimation**

VARIABLE	Reduced waiting time		Skill improvement		Availability of Investi. Services		Availability of drugs	
	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value	Coeff.	-value
Constant	1.15	0.8897	-0.35	0.9632	-1.49	0.7607	5.76	0.5589
Age	-0.80E-02	0.8766	-0.16E-01	0.6863	-0.11E-01	0.7129	-0.47E-0	0.9418
Education	0.12	0.7966	-0.48	0.3286	0.15	0.6450	1.91	0.0039
Gender	-0.76	0.6725	0.33	0.8309	-0.52	0.6151	-4.69	0.0325
Hh_size	-0.58E-01	0.7567	-0.45	0.8309	0.91E-02	0.9408	-0.29	0.2755
Marital	0.43	0.8715	1.28	0.5714	1.25	0.4438	0.63	0.8453
Eva_gov	0.19	0.6071	0.51	0.0975	0.16	0.3992	-0.53	0.2444
Wait_gov	-0.32	0.4232						
Expenditure	0.13	0.7557	0.39E-02	0.0080	0.38E-02	0.0000	0.84E-02	0.0006
Cattle	1.36	0.4828	0.32	0.8604	-0.10	0.9290	3.06	0.2774
Start -time	0.74	0.0001						
Start -skill			0.51	0.0000				
Start -inves					0.20	0.3270		
Start -drug							0.48	0.0000
Amhara	-0.36	0.9297	1.59	0.5978	3.29	0.0288	3.91	0.4706
Oromiya	-1.30	0.7469	1.64	0.5560	3.94	0.0108	1.15	0.8261
Snnpr	-2.97	0.4731	1.44	0.6215	2.90	0.0497	-0.60	0.9122
Tigray	-0.41	0.9973	-1.52	0.7884	4.22	0.4904	15.3	0.0209
Urban	0.17	0.9383	0.55E-01	0.9636	2.20	0.0013	-2.91	0.3252

Finally, the regression results indicated that demand for drugs was positively and significantly influenced by education and income. Males tended to place lower valuation on drugs than females. Residents of Tigray region also placed higher valuation on drugs under the improved condition.

6.1.5 Utilization of Reproductive Health Services

As shown in the table 6.20, a considerable proportion of the respondents were aware of the presence of reproductive health services. Among those who were aware and needed these services, more than 85% were getting the services from public providers and about 10% were obtaining them from NGO facilities. Only 1% of respondents were getting these services from private providers.

Table 6.20 Utilization of Reproductive Health Services by Household Survey Respondents

			Where did they get services			
	Aware of presence	Needed in the past 2 months	Public Facility	NGO Facility	Private Facility	Others
Antenatal Care	82%	50%	86%	10%	1%	3%
Delivery Care	83%	44%	83%	10%	2%	6%
Postnatal Care	80%	45%	85%	10%	1%	3%
Family planning	81%	46%	86%	8%	1%	4%
Immunization	89%	63%	88%	9%	1%	2%
Child health	87%	60%	87%	10%	1%	2%

6.1.6. WTP for Reproductive Health Services

As can be seen from the three tables below, quite a large proportion of the respondents expressed their willingness to pay for reproductive health services. This is a significant finding since most of these services (especially those related to family planning) are now provided for free.

Table 6.21 Proportion of Respondents WTP the Offered Prices (OP27) for FP Services

Condoms			Pills			Injectables			Implants		
OP	%	N	OP	%	N	OP	%	n	OP	%	n
1	41	613	1	54	607	2	56	607	10	37	610
2	36	540	2	47	538	5	49	539	25	33	535
3	20	503	5	26	510	10	25	510	50	17	504
4	16	488	10	23	504	15	28	503	75	8	490
5	9	498	20	13	497	30	16	495	100	4	506
VSC			Diaphragm			Advice					
OP	%	n	OP	%	N	OP	%	n			
10	32	601	1	40	605	.3	44	584			
25	26	530	2	36	548	1	50	521			
100	11	505	3	22	502	2	31	503			
200	4	490	5	13	490	3	21	484			
400	2	505	10	8	497	5	14	478			

²⁷ The initial offered price reflects the price of the service at public facilities (when service fees are charged for its provision).

Table 6.22 Proportion of Respondents WTP the Offered Prices for Pregnancy Services

Consultation			Drugs			Delivery		
OP	%	n	OP	%	N	OP	%	N
1	80	603	1	83	597	10	77	455
4	61	538	4	70	539	50	50	546
10	36	511	8	49	522	200	23	511
20	25	499	12	40	489	500	14	482
30	21	502	20	28	490	1000	11	472

Table 6.23 Proportion of Respondents WTP the Offered Prices for Child Care Services

Consultation			Vaccination			Drugs		
OP	%	n	OP	%	n	OP	%	n
1	82	597	.5	84	498	1	86	602
4	59	547	1	76	543	3	74	533
8	39	509	2	55	521	6	53	525
12	31	486	3	53	480	9	47	466
20	22	499	5	39	505	15	33	507

6.2 The Exit Survey

The types of facilities surveyed for the exit interview survey and the number of respondents in each category are shown in table 6.24. The table indicates that about 32% of respondents were interviewed at government health centers, while respondents visiting government health stations and hospital OPDs²⁸ constituted 9% and 22%, respectively. The rest of the respondents were patients visiting private (24%) and NGO (12%) institutions.

Table 6.24 Sampled patients and facilities for Exit Interview by Category

Type of facility	Number of patients sampled	Percent	Number of facilities sampled	Percent
Lower private clinic	42	1.9	3	2.7
Medium private clinic	259	11.7	15	13.4
Government health station	206	9.3	15	13.4
Mission clinic	166	7.5	10	9.0
Government health center	703	31.8	35	31.2
Mission health center	34	1.5	2	1.8
Higher private clinic	199	9.0	11	9.8
District hospital OPD	113	5.1	4	3.6
Mission/OGA hospital OPD	68	3.1	3	2.7
Private hospital OPD	40	1.8	2	1.8
Zonal hospital OPD	353	16.0	11	9.8
Central hospital OPD	30	1.4	1	0.8
Total	2,213	100.0	112	100.0

²⁸ This category includes district hospitals, zonal hospitals and central hospitals

6.2.1. Distance of Facility From Residence

For about 53% of the exit survey respondents, the particular facility visited was not the closest to their residences. In fact, about 52% of those who reported bypassing a closer facility identified the facility they bypassed by to be government-owned. As might be expected, most of the patients who were referred from other facilities claimed they knew a facility that is much closer to their residence. On the other hand, the results indicated that out of those who selected the current facility (since this is believed to be efficacious), 58% reported passing by a facility that was much closer to their home than the current one.

Table 6.25 Distance of residence by walking (in hours)

	All Sample	Public facilities	Private facilities)	Mission/OGA facilities
Mean	2.2	2.3	1.8	2.3
Median	.5	.5	.3	.5
Mode	.5	.5	.5	.5
Std. Deviation	6.3	6.6	5	6
Minimum	0	0	.03	.08
Maximum	120	120	40	50

The most important reason mentioned (in 40% of the cases) for visiting the facilities was perceived quality of the particular provider. Other reasons included price (16% of the cases) and waiting time (8% of the cases).

6.2.2. WTP for Improved Quality of Care

As in the household survey, there was a positive willingness to pay for proposed improvement in the quality of services provided by the facilities visited by the exit survey respondents.

6.2.2.1. WTP for reduced waiting time

Table 6.26 summarizes respondents WTP for a visit, assuming that improvements would be made that reduced by half the average time that patients would wait before seeing a practitioner.

Table 6.26 Maximum willingness to pay for visit by type of facility if waiting time is reduced by half

Initial price (in Birr)	Ownership of facilities	Type of facility	A. Mean	Median	Actual payment (Mean)	Actual payment (Median)	% of Total (in sample)
5.00	Government	Clinics	4.3	5.0	0.8	0.5	7.5%
	NGO	Clinic	2.4	2.0	1.2	1.0	3.7%
9.00	NGO	Health centers	4.7	5.0	2.7	1.0	3.4%
	Private	Lower clinic	2.8	0.0	4.4	4.5	2.1%
13.00	Government	Health centers	6.9	5.0	0.8	1.0	29.3%
16.00	Government	District hospital OPD	5.9	4.0	1.7	1.0	5.3%
		Zonal hospital OPD	8.8	5.0	2.2	1.0	13.5%
		Central hospital OPD	13.2	12.5	5.1	5.0	1.5%
	NGO	Hospital OPD	12.9	16.0	3.9	5.0	2.8%
24.00	Private	Medium clinic	15.5	15.0	11.5	10.0	8.0%
33.00	Private	Higher clinic	27.2	27.5	14.7	15.0	7.1%
60.00	Private	Hospital	56.2	60.0	45.3	40.0	1.8%

According to results of the above table, patients who visited government (health stations) were willing to pay Birr 5 for a visit if waiting time could be reduced by half. The corresponding prices for similar level NGO and private clinics were Birr 2 and zero, respectively. The median waiting time reported during the visit was 30 minutes, 20 minutes and 5 minutes for government, NGO, and private clinics, respectively.

Respondents also seemed to base their WTP valuation on the price they had already paid for visits just prior to the interview. A null hypothesis stating that there is no association between what consumers paid for a visit just before the interview (the interview was conducted upon patients' exit of the facilities) and what they stated as their maximum WTP could be rejected at any acceptable significance level for most facilities. The only exceptions in this regard were results from patients who visited lower private clinics, private hospital OPDs, and NGO hospital OPDs.

6.2.2.2. WTP for skill improvement

Table 6.27 summarizes WTP results for a visit assuming the skill of health care personnel is improved. The median prices were Birr 5, Birr 10 and Birr 6 for government health stations, health centers, and hospital OPDs, respectively.

Patients placed higher valuations on skill improvements compared to their valuations on reduced waiting time. Similar comparisons by facility type also indicate that, patients who visited government facilities were willing to pay higher prices for a visit if the improvement was in skill and courtesy rather than in reduction in waiting time. The only exception was the group that visited higher private clinics.

Table 6.27 Maximum willingness to pay for visit by type of facility if there is improvement in skill and courtesy of personnel

Initial price (in Birr)	Ownership of facilities	Type of facility	B. Mean	Median	% of Total (in sample)
5.00	Government	Clinics	5.7	5.0	7.3%
	NGO	Clinic	4.3	5.0	3.7%
9.00	NGO	Health centers	14.7	10.0	3.3%
	Private	Lower clinic	8.5	7.0	2.0%
13.00	Government	Health centers	11.0	10.0	30.2%
16.00	Government	District hospital	7.1	5.0	5.4%
		Zonal hospital	11.3	6.0	13.3%
		Central hospital	15.6	20.0	1.5%
	NGO	Hospital	18.3	16.0	2.7%
24.00	Private	Medium clinic	16.6	15.0	7.7%
33.00	Private	Higher clinic	22.2	16.5	6.9%
60.00	Private	Hospital	55.3	60.0	1.8%

The other finding in this study was that those who were dissatisfied with the practitioner (with regard to skill, courtesy, and waiting time) were willing to pay more for skill improvement than those who were neutral or satisfied. Analysis of this relationship at the facility level also indicates that the issue was especially important for patients who visited health centers and district hospital OPDs. For those visiting non-government health units, a strong association was found for medium and higher private clinics as well as private hospital OPDs.

6.2.2.3. WTP for improvement in investigative services

The third area of valuation tried to elicit WTP for improvements in investigative services. From the results summarized in Table 6.28 below, patients were willing to pay a median price of Birr 5 for improved investigation services (for all three types of government facilities) if the facilities could be equipped so that patients would get the required investigative services when they need them. The corresponding price for NGO clinics and private lower and medium clinics was also Birr 5 per visit.

Again, a cross-tabulation of WTP with presumably related variables reveals some interesting results. What consumers expressed as their maximum WTP for improvement in the investigative services strongly correlates with their perception of the type of investigative services available right now. More precisely, there was a strong negative association between WTP and the rate of satisfaction with existing investigative services for higher private clinics and central hospital OPDs. Although not significant, the direction of association was also negative in the case of government health centers and of district and NGO hospital OPDs.

Actual payments for investigative services were also observed to have positive association with WTP for investigative improvements. More importantly, there was a significant positive association between the two variables within each facility type (e.g. government, NGO and medium and higher private clinics, and district, zonal and NGO hospital OPDs).

Table 6.28 Maximum willingness to pay for investigation by type of facility if all investigation are made available

Initial price (in Birr)	Ownership of facilities	Level of facility	Mean	Median	Actual payment (Mean)	Actual payment (Median)	% of Total ²⁹
5.00	Government	Clinics	6.3	5.0	2.8	3.0	8.3%
		Health centers	6.3	5.0	2.0	1.0	33.3%
	NGO	Clinics	6.4	5.0	3.3	2.0	4.3%
		Health centers	4.5	5.0	6.5	4.0	1.5%
9.00	Government	District hospital OPD	6.1	5.0	9.1	6.0	6.0%
		Zonal hospital OPD	7.0	5.0	7.5	5.0	13.8%
		Central hospital OPD	24.0	15.0	80.5	39.0	1.2%
	NGO	Hospital OPD	16.1	0.0	17.5	15.0	3.3%
22.00	Private	Lower clinic	16.2	20.0	10.1	8.0	2.1%
54.00	Private	Medium clinic	31.2	25.0	25.6	20.0	10.0%
96.00	Private	Higher clinic	41.6	20.0	46.2	33.5	5.5%
105.00	Private	Hospitals	101.8	105.0	268.1	221.0	1.7%

6.2.2.4. WTP for improvement in drug availability

The fourth item of valuation for this study was regarding drug availability. Again, a similar valuation technique was used to assess willingness for improvement in drug availability at each facility. Results are summarized in Table 6.29 below.

Median WTPs for drugs at government clinics, health centers, and hospital OPDs were Birr 31, Birr 10, and Birr 15, respectively. One surprising result was that patients visiting government health stations on average declared a WTP price that was double the WTP price declared by patients treated at government hospital OPDs. Apparently, there was little difference between actual price paid for drugs at health station and district hospital OPD levels. In fact, patients visiting health stations were paying a median price that was significantly higher than those who visited government health centers.

²⁹ Total does not add up to 100% because there are responses in "others" category that are not shown here

Table 6.29 Maximum willingness to pay for drugs by type of facility if all drugs were made available

Initial price (in Birr)	Ownership of facilities	Type of facility	C. Mean	Median	Actual payment (Mean)	Actual payment (Median)	% of Total (in sample)
37.00	Government	Health stations	27.3	31.0	8.7	8.0	6.1%
		Health centers	19.0	10.0	8.7	5.5	34.6%
	NGO	Clinic	13.9	5.0	12.5	10.0	4.4%
42.00	Private	Lower clinic	26.7	20.0	22.8	13.5	2.2%
70.00	Government	District hospital OPD	26.3	10.0	26.3	12.0	6.3%
		Zonal hospital OPD	26.3	20.0	16.5	9.9	15.4%
		Central hospital OPD	51.0	50.0	100.1	35.0	1.4%
	NGO	Hospital OPD	55.1	0.0	32.2	25.0	2.5%
72.00	Private	Medium clinic	36.4	25.0	27.8	20.0	9.6%
150.00	Private	Higher clinic	69.9	50.0	52.7	33.0	5.4%
225.00	Private	Hospital OPD	155.7	160.0	221.5	162.7	1.3%

The state of drug availability does also seem to influence WTP for improved availability. There is a strong association between patients' inability to get prescribed drugs at the facility and their stated higher WTP if they were made available. Similar analysis with regard to patient perceptions about drug availability within facility also conformed to the above result. On average, those who perceived that drugs were not sufficiently available offered higher prices for improvement in this respect.

6.2.2.5. Multivariate Framework

Using the same approach as that used in the household survey, the exit interview survey data were fitted into a multivariate model. Determinants of WTP for the four categories of health care services proposed for evaluation were estimated with a Tobit model with selectivity. Before going directly to the results, a definition of the variables used in the model is presented below in Table 6.30.

Table 6.30 Definition of variables in the model (exit data)

Variable name	Definition of variable
Age	The age of the respondent in years
Education	Illiterate = 1; read & write = 2; elementary = 3; secondary = 4; college & above = 5.
Gender	Male = 1; else 0.
Marital	Marital = 1 if respondent is married; else = 0.
Distance	Travel time of the patient to reach the facility.
Pay_vis	Amount paid for visit in Birr
Pay_inve	Amount paid for investigation in Birr
Pay_drug	Amount paid for drugs in Birr
Start-time	Initial price patients were asked to pay for visit if waiting time is reduced by half.
Start-skill	Initial price patients were asked to pay for visit if skill of personnel is improved.
Start-inves	Initial price patients were asked to pay for investigation if the service is improved.
Start-drug	Initial price patients were asked to pay for drugs if drug availability is improved
Reception_q	Do you think the reception process is smooth and timely? Strongly disagree = 1, Disagree = 2, Neutral = 3, Agree = 4, Strongly Agree = 5.
Wait_time	Waiting time before a patient sees a practitioner (in minutes)
Practitioner_q	Degree of satisfaction with courtesy of reception staff. Very dissatisfied = 1, Dissatisfied = 2, Neutral = 3, Satisfied = 4, Very Satisfied = 5.
Investigation_q	Degree of satisfaction with the laboratory service Very dissatisfied = 1, Dissatisfied = 2, Neutral = 3, Satisfied = 4, Very Satisfied = 5.
Visit_q	Degree of satisfaction with the visit to the facility Very dissatisfied = 1, Dissatisfied = 2, Neutral = 3, Satisfied = 4, Very Satisfied = 5.
Dru_q	Degree of satisfaction with drug service; Satisfied = 1, Else = 0.
Drug_get	Where you able to get drugs at the facility? Not at all = 1, Partially = 2, Yes all = 3.
Income	Estimate of average annual income of the respondent's (in Birr)
Addis	ADDIS = 1 indicates respondent is resident of ADDIS ABABA administration, else = 0.
Amhara	AMHARA = 1 indicates respondent is resident of AMHARA region, else = 0.
Oromiya	OROMIYA = 1 indicates respondent is resident of OROMIYA region, else = 0.
Snnpr	SNNPR = 1 indicates respondent is resident of SNNPR region, else = 0.
Tigray	TIGRAY = 1 indicates respondent is resident of TIGRAY region, else = 0.

The regression results indicate that, the value patients placed on their WTP for a visit, if waiting time is reduced be half, is positively influenced by the amount they paid for visit in their most recent demand for health care. Residents of Addis Ababa were also more likely to

pay higher WTP prices for more efficient visit services than residents of other areas. It has also been observed that those patients who have to travel relatively shorter distances to reach a facility declared lower WTP prices for the improved service than those who came from farther places.

Patients who were relatively younger in age valued skill improvements more than did older aged patients. The effect of price paid for the visit in the most recent demand for health care also affected WTP for the improved service. Patients with higher incomes offered higher WTP. Residents of the Oromia and Tigray regions as well as Addis Ababa also highly valued skill improvements.

WTP for improved investigative services appeared to be positively correlated with the income of the service user. Residents of Addis Ababa offered to pay higher prices for improvements in investigative services compared to patients in other regions. Finally, educated people placed a relatively higher valuation on improved drug availability than less educated people. Similarly, one can expect that the higher the income of the consumer, or if the consumer were a resident of Oromia or Tigray regions, or of Addis Ababa, the higher the WTP for drugs under the improved condition.

Table 6.31 Analysis of WTP bids in the exit survey
Tobit results of the two-stage estimation

VARIABLE	Reduced time		Skill improvement		Availability of Investig. Services		Availability of drugs	
	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value
Constant	-5.44	0.1492	-7.28	0.0390	-6.17	0.6484	5.40	0.6947
Age	-0.22E-01	0.4733	0.54E-01	0.0763	0.14	0.1730	0.74E-02	0.9513
Education	-0.65E-02	0.9866	0.32	0.2400	0.48	0.6875	2.21	0.0325
Gender	0.99	0.2633	0.41	0.5426	1.27	0.6426	0.46	0.8803
Marital	0.58	0.2233	-0.35	0.4872	-1.80	0.2850	-1.66	0.4215
Distance	-0.90E-01	0.0325						
Pay_vis	0.32	0.0000	-0.12	0.0166				
Pay_inve					0.10	0.0000		
Pay_drug							0.19E-01	0.6756
Start-time	0.56	0.0000						
Start-skill			0.83	0.0000				
Start-inves					0.27	0.0000		
Start-drug							0.59E-01	0.3798
Reception_q			0.35	0.4073				
Visit_q	0.37	0.8652						
Wait_time	0.12E-02	0.3297						
Practitioner_q			-0.41	0.3963				
Investigation_q					0.64	0.9296		
Dru_q							1.62	0.2697
Drug_get							-2.07	0.2970
Income	0.29E-04	0.1845	0.24E-04	0.0126	0.44E-03	0.0000	0.11E-02	0.0000
Addis	9.98	0.0000	9.62	0.0000	31.2	0.0000	26.51	0.0287
Amhara	-0.53	0.8340	1.37	0.5293	2.51	0.7948	4.12	0.7066
Oromiya	3.80	0.1291	8.58	0.0001	7.33	0.4379	24.11	0.0257
SNNPR	1.60	0.4804	3.27	0.1194	-5.58	0.5725	-2.31	0.8324
Tigray	1.19	0.6566	8.93	0.0004	11.54	0.2995	20.67	0.0847

6.2.2.6 Evidence on Proportions Not Paying at Health Care Facilities

Before leaving this discussion of WTP estimates based on the contingent valuation method, it is useful to provide some perspective on the surprisingly high estimates we have reported for the means both for actual payments and for the amounts respondents say they are willing to pay for quality improvements. It should be noted that the means will differ depending on whether one includes, in the calculation, nonpayers (of those receiving services) or those saying they are willing to pay nothing (of those asked their contingent valuations).

The differences were shown in Tables³⁰ 6.12, 6.15, and 6.17, for averaged amounts that patients paid for visits, lab tests, and prescribed drugs, respectively. When the household respondents who reported they paid nothing are included in the averaging calculus, the means for all respondents are naturally shown to be considerably less than the means for only those with positive payments. Moreover, the percentages of persons reporting that they did not pay anything are significantly high, ranging from 3 out of 10 patients to 7 out of 10 patients.

The facility survey provided additional data on this question because respondents (facility managers) were asked to estimate the percentage of patients visiting their facilities who were not required to pay anything for services received. Table 6.32 summarizes the results by region. (Empty cells indicate insufficient data.) While these data are somewhat lower than the proportions calculated from the household responses, they are additional evidence that exemptions and waivers of fees are a relatively significant phenomenon across the country. The figures of 60% for zonal hospitals in two regions and in Dire Dawa are particularly significant because of the high costs of operating these facilities. They indicate that there are opportunities there to recover some small portion of those high costs from more patients, particularly from those who could afford to pay, and that such efforts could possibly generate more significant revenue than might be generated at outpatient facilities.

Table 6.32 Proportion of free patients in the facility

Facility Level	Total N	Region					
		Addis	Amhara	Ormoia	SNNP	Tigray	Dire Dawa
Public Health Stations	15		30	11		18	
Mission Health Stations	10	17		20	30		
Public Health Centers	35	15	27	19	25	35	
Mission Health Centers	2				10		
District Hospitals	4		57		50		
Zonal Hospitals	11		60	60	35	45	60
Central Referral Hospitals	1	27					

Source: Average estimates of facility managers in facility survey.

6.3. The Focus Group Discussions

Quantitative analyses of willingness to pay for quality of medical services may not capture certain qualitative dimensions that would be important at policy levels. For example, it would be important to know the bases for patients' perceptions of quality, which may differ from

³⁰ As reported in the household survey for patients who sought treatment at government and/or nongovernment (NGO) facilities.

professionals' opinions or assumptions of what those perceptions should be. In many developing countries, quality is often seen as a function of the availability of drugs and/or injections, regardless of the condition of the facility or the competence the practitioners. Moreover, quantitative analyses could be enriched by using qualitative methods. Focus group discussions are one of the qualitative research methods that are available.

It was, therefore, for this reason that the focus group method was included in this particular study. The focus group component was expected to provide particularly useful information on the Ethiopians' perception of the relationship between price and quality in regard to their willingness and ability to pay for health services at different types and levels of facilities.

The principal topics covered in these focus groups were:

- Participants' perceptions of the main ingredients of "quality of medical care"
- Participants' view of the government's responsibility for providing quality medical care (what it should do in this area)
- Participants' view of the user's responsibility to pay for quality medical care
 - Other people as users
 - Self as user
- Distinguishing willingness/ability/responsibility to pay
- Participants' opinions about the relative quality and costs of alternatives to government-sponsored medical care (namely, at NGO clinics or for-profit private clinics).

6.3.1. Results of Focus Group Discussions

6.3.1.1. General Finding on Quality of Care

The general opinion of respondents about quality of health care was reflected in areas of care that were mainly curative. The elements of curative service that were mentioned as being most important were a decrease in waiting time and an improvement in the availability of drugs and injections. Other factors mentioned were promptness of service and the proximity of provider institutions to people's homes.

Although they were not given equal emphasis as the above factors, the following were also mentioned as parameters signifying the quality of services:

- Availability of knowledgeable caregiver(s) in the facility.
- Availability of diagnostic facilities and therapeutic services and supplies.
- Compliance of the health care provider to the patients' demands (in terms of prescribing what they suggest for diagnostics and therapeutics)

6.3.1.2. Different Dimensions of Quality

Regarding skill of the caregiver it was found that what is perceived as "knowledgeable" refers to someone who is skilled more in the diagnosis and treatment of a serious disease or injury

than in diagnosis and treatment of minor ailments. People usually come to a conclusion about the skill of caregivers through personal experience. They may also base their conclusions on information from friends and relatives about a particular caregiver. Generally, the ability to treat minor ailments is widely perceived as an ordinary skill that does not qualify a caregiver as being “knowledgeable”.

The perception of the focus groups about what constitutes a “knowledgeable” caregiver included the qualities of being a good listener, having a courteous manner, showing respect for patients, and being tolerant of patients’ behaviors. The skill and understanding of providers is revealed, it was said, in their abilities and willingnesses to listen patiently to patients’ complaints and to respond to patients’ needs.

Next to the character and behavior of health personnel, an indicator of quality was the regular availability of diagnostic and therapeutic facilities. These included availability of routine and basic laboratory investigations such as stool, urine, and blood examinations. Blood examination in particular is given emphasis as a crucial component of proper diagnosis. Other clinical investigation facilities referred to by focus groups as attributes of ideal health services were x-ray and ultrasound machines (the latter mentioned as “television for investigation” or “an instrument for looking into the body to find out what is causing the diseases or how the disease is affecting the patient”). Participants justified these as characteristics of an ideal health facility mainly because, as they understood or were most often told, it is the absence of these facilities that leads to referrals to higher level facilities.

6.3.1.3. Difference in quality by provider

In general, the response of participants to perceived differences in the quality of health care between providers was not thought of as one provider being superior and another inferior. Focus group participants rated different components of services (for instance therapeutic versus diagnostic) within a particular provider as having higher or lower quality. However, when these responses were aggregated, a higher number of service components that are provided by the public providers got an inferior rating. In government service providers, specific components that were most often indicated as inferior were excessive waiting times and insensitive handling of patients by health workers. The fact that patients see different personnel, for different diagnostic or therapeutic stages of a single episode, was perceived as indicating inferior service and a poor way of handling patients, one likely to lead to a bad physician-patient relationship. Aggregated ratings for private and NGO providers were generally similar, although concerns were more often raised about their excessive charges. With regard to NGOs, services provided at hospital OPDs were considered to have excessive prices while NGO services provided at health centers and health stations were considered to have fair prices.

Service components within the public sector that were rated as superior included the availability of inpatient beds, x-rays, and large numbers of highly qualified health workers. Most importantly, the characteristic of public providers that would persuade people to choose them were the fact that they charged lower prices than prices charged by other categories of providers, particularly in lower institutions like health centers and health stations. Private

providers were rated as superior for their promptness, for the shortness of waiting times, and for the fact that they are open during off hours and on holidays. This was mentioned as being especially important for emergency situations.

It was also expressed that most private providers have knowledgeable personnel. Private providers were also considered good in handling patients since they want to attract clients. It was also noted that there is also more opportunity for choice among private individual physicians, enabling continuity of follow-up among the private as compared to public sector providers. On the other hand, most private providers were considered inferior to big government institutions like hospitals because they provide limited diagnostic (laboratory and x-ray) and therapeutic (surgical) services. Those private practitioners that did have adequate diagnostic facilities were blamed for ordering unnecessary investigations and very expensive drugs.

Wherever NGO providers were known to members of focus groups, they were compared favorably to private providers with regard to immediate availability of services. An area in which NGO providers were rated as being superior to both other private and government providers was their cleanliness. In addition, in most other areas, like patient handling, skill of staff, availability of drugs and supplies, and availability of inpatient beds and diagnostic facilities, private providers were rated as being superior to government providers.

6.3.1.4. Participants' Willingness to Pay for Improved services

There is understanding of the need for increased fees to improve quality as perceived by participants. Such qualities as shorter waiting times, prompt and regular availability of required drugs and injections, and the proper handling of patients were the improvements most desired and for which people expressed their willingness to pay higher fees. The mean additional amount they were willing to pay was between Birr 2 and Birr 3. Higher socioeconomic groups have also expressed willingness to pay for improvements in investigation services, availability of beds, and cleanliness of facilities. The mean additional amount that higher socioeconomic groups were willing to pay was between Birr 5 and Birr 10 for these improvements.

6.3.2. Willingness to pay for reproductive health services

Focus groups expressed concerns about population growth. These concerns, according to them, were based on the observed shortage of land and the negative effect that an increasing population will have on the amount of land that can be distributed in the future to subsequent generations. These observations have generated greater acceptance of family planning and other reproductive health services. There was also in most focus groups an expressed willingness to pay for reproductive health services, although a few in the groups rejected the idea of payment for these services. The primary reason put forward by those rejecting the idea of payment was that they considered the provision of these types of preventive services to be a responsibility of the government in contrast to curative services for which payment would be fair. In a few focus groups, religious reasons (particularly as they related to family planning services) were also given as reasons to resist paying for these services.

7 Discussion

Employing three different methods of data collection, the present study has attempted to assess the health service seeking behavior of households and patients and measure the willingness to pay of households and patients at facilities for improved health care in Ethiopia. The results of analysis of data from the three different methods largely complement each other.

To begin with, the rate of morbidity during the two months preceding the survey was about 10%. About four-fifths of those who reported sickness during this period sought outside medical assistance, thereby indicating health service utilization rate of 84% of those reporting an illness. The associated mean health expenditure during this last illness was Birr 59 (or US\$ 7). More than 90% of those who sought outside medical assistance went to the 'modern' sector, while roughly 4% reported seeking assistance from traditional healers. Urbanites tended to use traditional healers and home-made medicines less frequently than did residents of rural areas. This could reflect the effect on utilization of awareness about and access to facilities.

Regarding provider choice, evidently, most households visited government-owned health facilities in their most recent demand for health care service. The rate of using private-for-profit providers was about 15% and NGO facilities close to 10%. According to the respondents, provider choice was primarily motivated by perceived effectiveness of care. Quality of care in terms of availability of skilled staff and of drugs was found to be a major factor in people's choices of provider. In the household survey for instance, the number one reason for choosing the most recent provider (for those who had a family member sick in the last two months preceding the survey) was perceived effectiveness of care. In the exit survey, the role of perceived quality of provider is even stronger, with about 40 percent of the sample regarding it as the primary reason.

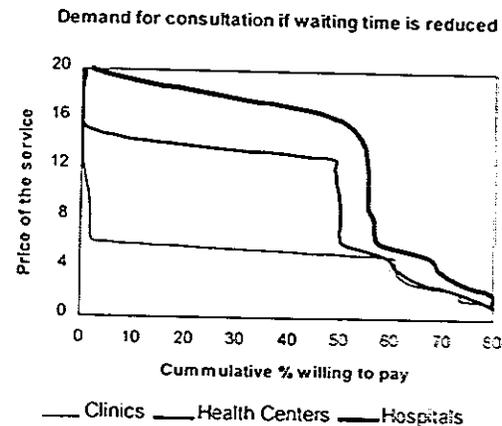
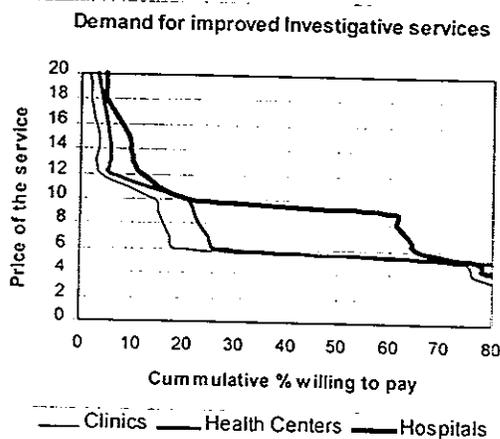
The cost of medical care was the second important determinant of provider choice. About 20% of respondents identified the reason for choosing the particular facility in their most recent demand for service to be insufficient monetary resources to go elsewhere. Equally important was geographic accessibility of health facilities. According to the household survey result, one-fifth of the respondents chose the facility they visited recently because it was the nearest available health care facility.

Based on their last encounter with health care facilities, households considered the quality of service provision in public facilities relatively poor (with roughly 30% considering it below average, compared to only 14% for NGO facilities and 12% for private facilities). There was also indication that satisfaction with service delivery at public facilities gets worse as one goes higher up in the service hierarchy. For instance, about 36% of households perceived the quality of service delivery at clinics to be below average while the corresponding figures for health center and hospital outpatient departments were close to 47% (Sig. = 0.001).

One of the major results of this study is a finding that households not only recognize the inadequacy of quality in service provision, are also willing to pay higher prices if quality were improved. For instance, assuming that there actually were a fifty percent reduction in the average waiting time at government-owned clinics, the median price households would be willing to pay for a visit was Birr 5. The existing median price for a visit is only Birr 1.

More importantly, if this result were achieved in reality,³¹ at a price equal to Birr 5 per visit the improved service would be demanded by about 60% of the potential consumers. A similar level of improvement in waiting time at health centers and hospitals is predicted to attract some 50% of the potential consumers (again both evaluated at median prices).

Using parallel analysis, it is observed that for

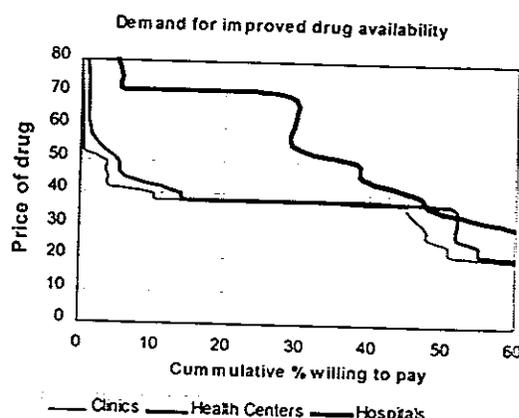


improved availability of investigative services, government clinics, health centers and hospitals' outpatient departments would expect to draw close to 75%, 84%, and 61% of potential users if the facilities were to charge the median prices of Birr 5, Birr 5 and Birr 9, respectively, for improved investigative services.

Actual median prices paid for investigation were Birr 5 (for those who visited government clinic/health centers) and Birr 8 for hospital OPDs.

³¹ That is, if respondents' reports of their contingent valuations were to be reflected in actual purchases, and if all other factors influencing demand remain unchanged (or as they were in the survey population). This ambitious assumption applies also to all subsequent analysis being reported here. Results reported should not be interpreted as predictions or forecasts.

Finally, if the improvement made were on the consistent availability of drugs, the expected potential utilization of drug services from the three types of government owned health care institutions would be about 51% for clinics (at the price of Birr 25), 51% for health centers (price = Birr 37) and 50% for hospitals (price = Birr 35). Actual median prices are Birr 13 for clinics/health centers, and Birr 19.5 for hospitals.



Several important factors seem to explain the WTP of respondent. Principal in this respect is the role of income. Households with higher incomes³² revealed higher willingness to pay for almost all categories of the improved services (except for reduced waiting time in the household model). This has invariably been confirmed in a multivariate analysis both in the household survey and the exit survey data. This result confirms that WTPs are associated closely with ability to pay. In the household result, there is an indication that relatively more educated household heads tend to place higher valuation on the improved services compared to less educated ones. The latter is true for investigative services and drug availability in the household model. Those with higher educational status may have higher awareness of the benefits of the services and thus may be more willing to pay for quality improvements.

In both the household and exit models, the offered price also positively affected the final outcome of the WTP. In the exit survey in particular, the price already paid by the patient does also seemed to enter in the calculation of the WTP price of improved service. Respondents' evaluations of existing service quality is also reflected in the valuation process. In both the exit and household results, those who consider the level of existing service quality with regard to drug availability as satisfactory tend to place lesser value on improvements (they are already getting the benefits they seek).

The effect of income was also reflected on the multinomial logit analysis for the exit data (even though there was no such indication in the household data) by the fact that those with higher income have chosen private providers who would be more likely to charge higher fees.

Distance from facilities negatively affected willingness to pay for most of the suggested improvements (as reflected by lower WTP by those in the regions). In addition to the effect of private sector offered prices, this might be related to the fact that those distant from facilities might not have the level of awareness to appreciate the benefits of the suggested quality improvements. The implication may be that physical accessibility to facilities would increase utilization as well as WTP for services.

³² Household expenditure has been taken as a proxy for income in the household model.

Comparisons of WTPs by facility type indicate that, patients who visited government facilities were willing to pay higher prices for a visit if the improvement is in skill and courtesy rather than in improvement from a reduction of waiting time. As indicated in the multivariate model as well, the effect of current average waiting time on revealed WTP is insignificant in most cases. Using simple statistical techniques, it was also shown that out of those who consider the existing quality of service delivery to be unsatisfactory, only 10% gave the reason for dissatisfaction as lengthy waiting time.

On the other hand, the valuation of visit services was higher for patients who visited private facilities (at least for the group that visited higher private clinics) if the improvement were in reducing waiting time rather than in skill or courtesy. This may be an indication of the fact that patients were expressing higher WTP for services that were not satisfactorily provided to them at the visited facilities. It is to be expected that providers at private facilities would have higher incentives to handle patients with courtesy compared to public facility practitioners since the former would be more likely to be remunerated on a per case basis. Those practitioners at public facilities would be more likely to be overburdened with patient load as well as with the frustration with the lack of supplies needed for proper diagnosis and treatment.

One surprising result is that patients visiting government clinics had a median WTP price that was significantly higher than the WTP price for consistent drug availability of patients treated at government hospital OPDs (this is true at least for district hospitals and zonal hospitals). Referring to prices already paid by patients, apparently there is little difference between actual price paid for drugs at health station and zonal hospital OPD levels. In fact, patients visiting health stations were paying a median price that was significantly higher than those who visited government health centers. This may be an indication of the fact that health stations were more likely to run out of drugs compared to district hospitals and, as mentioned earlier, respondents were showing a higher WTP for an item they did not get at the visited facilities (but would have to pay considerably more for if purchased at a private pharmacy).

With regard to WTP for reproductive health services, people seemed to be aware of the effect of excessive population growth in straining available resources for day-to-day living, and hence expressed a demand for family planning services. This fact has also been shown in the results of the recent Demographic and Health Survey (DHS) (CSA, 2000). In that survey, it is reported that the majority of women and men expressed a desire to control their future childbearing. About one in three women and men have stated that they do not want any more children, while another one-third of respondents were reported as having desire the to wait at least two years for their next child. The fact that a relatively lower proportion was willing to pay the offered prices may be because these services are currently being provided free of charges or at relatively nominal prices compared to prices for pregnancy and childhood-related services. Comparatively higher proportions of respondents were willing to pay for injection forms of contraceptives and pills. Pills are the most common method currently available in the country and they are popular among most respondents. However, medications in injection form may be preferable for their ease and because they need to be less frequently administered than other methods.

Most reproductive health services are, for the most part, public goods. Since the consumption by an individual of such services extends benefits to the community at large, government involvement in their provision would have to be mandatory in order to realize their maximum benefits. Reproductive health services are currently subsidized by government and donor support, due to their public good nature and for reasons of demand creation. However, such an arrangement is perhaps unsustainable in the long run. Although the level of revenue that can be generated may not be very high, targeted cost-recovery could be explored in this area. Current and potential consumers also need to be sensitized to cost sharing in these services for future sustainability as well as for current efficiency.

The offered prices for suggested quality improvements were set to be 150% of the estimated average cost of the particular services. This was intended to give an indication to test demand at levels that could mostly recover the costs of production with some markup possible for subsidizing those who would be unable to pay. Of course, the unit cost estimates used for deriving the offered prices were based on studies that were conducted some five years ago. In addition, the estimates were for average rather than marginal costs of the services in question, and data from facilities with very different efficiency levels were aggregated. Nevertheless, considering the fact that the proposed prices were meant to be incremental payments made in addition to what respondents had already paid in terms of user charges, one can infer the presence a positive and favorable level of willingness-to-pay for health care if the suggested quality improvements were implemented.

The level of actual expenditure for health services (mean monthly expenditure of about Birr 15 for all samples including those with zero expenditure) was also significantly high especially when one considers the non-medical and other indirect costs involved in the process of obtaining care. One should also consider the effect on the calculated mean of the number who got fee waivers. Therefore, the present study indicates that the government has some room to maneuver in considering cost recovery in the health sector by improving the level of quality of services.

Ensuring the availability of drugs and necessary investigations are areas where a higher proportion of respondents expressed willingness to pay the offered prices. This is not a new finding in the context of evidence accumulated in the health care financing literature. Most of the empirical work in the area indicates that the need for maintaining support for affordable prices of drugs is critical to the success of user fee programs since people appear to be more willing to pay for tangible products such as drugs than for consultation services (Shaw and Griffin, 1995). Similarly, a WTP study in Belize revealed high willingness to pay for existing government health services, and especially for improved government services offering reasonable waiting times, supplies of drugs, and pleasant waiting rooms (North and et al., 1993). Studies elsewhere have also shown that people appear to be more willing to pay for tangible products such as drugs than for services (Tsongo and et al., 1993; Kutzin, 1995). In addition, drug availability has a large effect on the decision to seek formal treatment (Chawla and Ellis, 2000). Therefore, the finding in the present study confirms that these services could be targeted for fee revision. In addition, since these services comprise structural elements that can be provided with seed resources, it would be relatively easy to deal with

them initially compared to the other two (staff skill and timely reception) which would have some degree of time-consuming process elements.

The fact that there was a correlation between level of household expenditure (used as a proxy for household income) and health expenditure and willingness to pay for improved quality of care shows that ability to pay was incorporated in willingness to pay. Increasing WTP for the suggested improvements was also significantly associated with increasing household income. Other studies have also shown that income and expenditures correlate with willingness to pay (Sow, 1994). On the other hand, those with higher income were more likely to prefer private over public facilities. Private facilities were more likely to have made the suggested improvements that generate a higher WTP.

Even though the maximum WTP was higher than the offered price for about 50% of the respondents, it was also shown that there is a fee level that is affordable even by the lowest socioeconomic groups. A study in Tanzania has also shown that modest charges and attempts to exempt the poor would be more equitable than the existing situation, if the revenue gained could be used to ensure that supplies were always adequate (Walraven, 1996).

Any strategy to institute or to increase the level of service charges at public facilities must address the difficult process of converting revenue gains into service quality and/or accessibility improvement (Kutzin, 1995). Since raising fees lowers subsidies to the public, negative health consequences may ensue unless the resources generated from fees are reallocated to more efficacious programs (Hammer and Gertler, 1997).

The revenue generating potential of increasing user fees would be augmented if health facilities were given the right to retain some portion of the fees. This would facilitate improvements in the process dimensions of quality of care since incentives would be created for enhancing staff motivation. This would also contribute to efficiency in the use and accounting of resources within those institutions that are given the chance to retain portions of income generated from user fees.

The discretion to grant waivers for those unable to pay should also be decentralized at local (preferably *wareda*) levels and should be tied with budgetary responsibilities for health financing in the locality. Local (*wareda*) officials should be provided with lump sum budget for health that would take into consideration the proportion of people that would be eligible for fee-waivers. In such situations, they would be cost-conscious and would have an incentive for minimizing the possibility of leakage. Those unable to pay could be provided with waivers at the point of service and their expenditures paid directly to providers as a subsidy by local (*wareda*) governments.

8 Potential Impacts Of Changes In Quality, Waiver Policy, And User Fees: Summary Of Research Findings And Illustrative Analysis

In this section, we summarize the policy-relevant findings on willingness to pay and the price elasticities of demand for medical care in Ethiopia. Then, we show how these findings can be used to estimate various alternative scenarios to show the potential impact of changes in quality, in waiver policy, and in user fees at government outpatient facilities.

It has been shown that perceived quality is an important factor in determining the people's choice of health care providers. The other most important factors were geographic accessibility and price. Willingness to pay for improved quality was, in turn, affected by household income and the offered price. Therefore, given a health facility of reasonable accessibility, one can assess the effects of different price levels on the willingness to pay, and thus on potential revenue that can be generated.

8.1. Price and WTP for Quality Improvements

8.1.1. Summary WTP for Suggested Improvements

Table 8.1 below summarizes the central tendencies of WTP responses from the household survey for suggested improvements in different categories of public institutions.

Table 8.1 Summary of Mean and median WTP for suggested improvements at public facilities

Type of Facility	WTP for Reduced Waiting Time		WTP for Improvement in skill of staff		WTP for availability of necessary investigations		WTP for availability of necessary drugs	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Health Stations	3.9	5	4.7	5	5.6	5	25	25
Health Centers	7.9	13	9.1	9	5.6	5	27	37
Hospital OPDs	10.2	16	10.5	10	8.4	9	41	36

8.1.2. Potential Impact of Observed WTP on Revenue and Utilization

The potential impact of the observed WTP on revenue and utilization is dependent on the price elasticity of demand (as measured by the WTP for improved quality). The calculated price elasticity of demand on the mean WTP for suggested improvements (availability of investigations and availability of drugs and treatment) is shown in Table 8.2. It would be reasonable, in the short run, to look at the likely impact of WTPs for investigations and drugs since these are structural items that can be easily supplied in contrast to reducing waiting time and improving skill and courtesy of staff. Improving staff skills requires some element of

8.2 Household Income and WTP for Quality Improvements

There seemed to be a correlation between reported WTP and increasing quartiles of expenditure since those with lower total household expenditure (proxy for household income) had relatively lower health expenditure and lower maximum WTP for the suggested improvements. This is shown in Table 8.3 below. The effect of household income on WTP was also significant in the regression analyses.

Table 8.3 Mean Health Expenditure and WTP by Quartiles of Mean Total HH Expenditure

Income Quartile	Monthly Household Budget	Monthly Health Expenditure	Mean Maximum WTP
Lower Quartile	117	12.68	19.88
Middle two Quartiles ³⁴	200	17.83	26.67
Upper Quartile	600	30.83	33.34
Whole Sample Mean	291	15.42	26.03

It is noteworthy that the lower income households, even those in the middle quartiles, report maximum WTP that considerably exceed (by about 50%, at the quartile means) what they actually do pay. In contrast, the highest income quartile reports a mean maximum WTP that is only 10% higher than the mean payments per year. Also, the lower quartile reports monthly health expenditure at about 10% of their total budgets, while the upper quartile reports monthly health expenditure at about 5% of their total budgets.

8.3 Estimating Changes in Quality, in Fee Waiver Policy, and in User Fees: Illustrative Analyses

The WTP study has provided estimates of average fees paid in government facilities and the price elasticities of demand for lab tests and for prescription drugs. Using the above findings on price elasticities and some assumptions about the impact of improved quality on utilization, and applying them to actual MOH data on ambulatory care utilization and health revenues received by the Ministry of Finance, one can give some rough estimates of the impact of various implementation regimes on use and revenues. (This analysis does not take into account the associated changes in costs associated with changes in use.³⁵)

8.2.1 Baseline Estimates and Scenario Assumptions

We estimate four distinct scenarios against a baseline for use and revenue data for government outpatient facilities. The baseline is created as follows:

1. Note a total of 20.4 million outpatient visits to government facilities during EY1991.

³⁴ The value in the middle is a collapsed value for the two middle quartiles. That is how SPSS reports quartile results.

³⁵ An analysis incorporating cost as well as revenue impacts is included in A. Fairbank, "Improving the Quality of Services and Adjusting User Fees at Ethiopian Government Health Facilities: Estimating the Potential Impacts of Implementing Various Options," ESHE Project, Ministry of Health, FDRE, forthcoming.

2. Of these, there were 3.4 million visits to government hospital outpatient departments.
3. In EY1991, total revenue from exams and treatment was Birr 17.79 million and from prescription drugs (and medical equipment) was Birr 33.83 million.
4. If we assume (from the exit survey) that average (collected) fees for lab tests were Birr 3 and for drugs were Birr 10, and then divide these into the total revenue, we obtain paid visits (one test per visit) of 5.93 million (or 29% of the total visits), and paid prescriptions of 3.38 million (or 17% of the total visits). [These are overestimated by some unknown amount because some of the revenue is from tests and drugs purchased by inpatients.]
5. For Scenario A, we model the impact of lowering exemption rates as follows:
 - Exemptions from payments for tests drop from 71% to 35%.
 - Exemptions from payments for drugs drop from 83% to 65%.
6. For Scenario B, we model the impact of raising fees by 50%, exemption rate and quality unchanged. Fees for tests go to Birr 4.5 and for drugs to Birr 15.
7. For Scenario C, we model the impact of raising quality, exemption rate and fees unchanged. We assume that a regular supply of drugs (through Special Pharmacies) leads to a 50% increase in total utilization. This is generally supported by the results of the WTP study.
8. For Scenario D, based on Scenario C, we then raise fees by 50% from the baseline amounts, exemption rate unchanged but quality raised as in Scenario C.

The assumptions as noted above, and the results and the calculated results, are shown in Table 8.4 below.

TABLE 8.4A

**ESTIMATING FOUR SCENARIOS OF
IMPROVING QUALITY, TIGHTENING EXEMPTIONS,
AND/OR RAISING USER FEES**

Scenario A: Decreasing exemption rate by 50%*

*(applying WTP results to aggregated data on ambulatory visits and on MOF fee revenue)
EY1991*

* Specifically, decrease exemption rate from 65% to 30% for exams; from 80% to 60% for drugs; no other changes.

	Total Visits	Exams & Treatment # Paid	Fee per Total Exam (birr)	Total Collected (birr millions)	Rx Drugs # Paid	Fee per Total Rx (birr)	Total Collected (birr millions)	Grand Total Revenue (birr millions)	Percent Increase Over Baseline
Baseline Assumptions									
Hospital OPD Visits	3,363,460								
Non-OPD Outpatient Visits	17,004,714								
TOTAL Outpatient Visits	20,368,174	5,930,000	3	17.79	3,383,400	10	33.83	51.62	
% of users paying		29%			17%				
Scenario A									
Exemption rate lowered to...			35%			65%			
Increased fee for new payers			100%			100%			
Elasticity			-0.48			-0.82			
New average fee			3			10			
New total use, exams	16,567,331	9,730,843							
New total use, drugs					4,057,583				
New revenue				29.19			40.58	69.77	
Net change in revenue				11.40			6.74	18.14	35%
Net change in total use		-3,800,843							
Net change in paid use		3,800,843							
% of users paying		59%			674,183				
					24%				

TABLE 8.4B

**ESTIMATING FOUR SCENARIOS OF
IMPROVING QUALITY, TIGHTENING EXEMPTIONS,
AND/OR RAISING USER FEES**

*(applying WTP results to aggregated data on ambulatory visits and on MOF fee revenue)
EY1991*

Scenario B: Raising fees 50% without improving quality or changing exemption rate*

** Specifically, fees for tests rise to Birr 4.5 from Birr 3.0; for drugs, to Birr 15 from Birr 10.*

	Total Visits	Exams & Treatment Exam # Paid	Fee per Total Exam (birr)	Total Collected (birr millions)	Rx Drugs # Paid	Fee per Total Rx (birr)	Total Collected (birr millions)	Grand Total Revenue (birr millions)	Percent Increase Over Baseline
Baseline Assumptions									
Hospital OPD Visits	3,363,460								
Non-OPD Outpatient Visits	17,004,714								
TOTAL Outpatient Visits	20,368,174	5,930,000	3	17.79	3,383,400	10	33.83	51.62	
% of users paying		29%			17%				
Scenario B									
Raise fees 50%, quality unchanged			50%			50%			
Elasticity			-0.48			-0.82			
New average fee			4.5			15			
New total use, exams	18,944,974	4,506,800							
New total use, drugs					1,996,206				
New revenue				20.28			29.94	50.22	
Net change in revenue				2.49			-3.89	-1.40	-3%
Net change in use		-1,423,200			-1,387,194				
% of users paying		24%			11%				
% change from baseline		-24%			-41%				

TABLE 8.4C

**ESTIMATING FOUR SCENARIOS OF
IMPROVING QUALITY, TIGHTENING EXEMPTIONS,
AND/OR RAISING USER FEES**

*(applying WTP results to aggregated data on ambulatory visits and on MOF fee revenue)
EY1991*

Scenario C: All facilities have consistent availability of needed tests and drugs*

***Specifically, Quality improved by assured regular supply of drugs (exams increase 50%; prescriptions increase 100%)*

	Total Visits	Exams & Treatment # Paid	Fee per Exam (birr)	Total Collected (birr millions)	Rx Drugs # Paid	Fee per Rx (birr)	Total Collected (birr millions)	Grand Total Revenue (birr millions)	Percent Increase Over Baseline
Baseline Assumptions									
Hospital OPD Visits	3,363,460								
Non-OPD Outpatient Visits	17,004,714								
TOTAL Outpatient Visits	20,368,174	5,930,000	3	17.79	3,383,400	10	33.83	51.62	
% of users paying		29%			17%				
Scenario C									
Raise quality, fees unchanged									
Elasticity			50%			100%			
New average fee			1			1			
New total use, exams	30,552,261	8,895,000	3			10			
New total use, drugs					6,766,800				
New revenue				26.69			67.67	94.35	
Net change in revenue				8.90			33.83	42.73	83%
Net change in use		2,965,000			3,383,400				
% of users paying		29%			22%				
% change from baseline		50%			100%				

TABLE 8.4D

**ESTIMATING FOUR SCENARIOS OF
IMPROVING QUALITY, TIGHTENING EXEMPTIONS,
AND/OR RAISING USER FEES**

*(applying WTP results to aggregated data on ambulatory visits and on MOF fee revenue)
EY1991*

Scenario D: Fees rise 50% after quality is improved as in Scenario C.

**Specifically, after quality is improved, fees are raised by 50%, exemption rate unchanged.*

NOTE: Baseline for this Scenario D is Scenario C.

	Total Visits	Exams & Treatment # Paid	Fee per Total Exam (birr)	Total Collected (birr millions)	Rx Drugs # Paid	Fee per Total Rx (birr)	Total Collected (birr millions)	Grand Total Revenue (birr millions)	Percent Increase Over Baseline
Baseline Assumptions									
Hospital OPD Visits	3,363,460								
Non-OPD Outpatient Visits	17,004,714								
TOTAL Outpatient Visits	20,368,174	5,930,000	3	17.79	3,383,400	10	33.83	51.62	
% of users paying		29%			17%				
Scenario D (Scenario C is baseline, all data here are compared to Scenario C)									
Raise fees 50%, quality improved			50%			50%			
Elasticity			-0.48			-0.82			
New total use, exams	28,417,461	6,760,200	4.5			15			
New total use, drugs					3,992,412				
New revenue				30.42			59.89	90.31	
Net change in revenue (vs A)				12.63			26.05	38.68	75%
Net change in use (vs. C)		-2,134,800			-2,774,388				
% of users paying		24%			14%				
% change from baseline (A)		-36%			-82%				

8.2.3 Estimating Scenario A

Assuming that people losing their exemptions face fee increases of 100%, and assuming a price elasticity for tests of -0.48 , paid use would rise from 5.93 million to 9.73 million, an increase of 3.8 million paid tests. Assuming a price elasticity for prescription drugs of -0.82 , paid prescription drugs would rise 4.06 million, an increase of 0.67 million. Because fees increase for about 35% to all users, there would also be an overall decline in use from 20.4 million to 16.6 million. Revenues from tests would increase by Birr 11.4 million and, from drugs, by Birr 6.74 million. This Birr 18.14 million increase over the baseline of Birr 51.62 would constitute a 35% increase in revenues. Costs would be lower by some indeterminate amount.

8.2.4 Estimating Scenario B

Assuming that fees are raised by 50% to Birr 4.5 and Birr 15 for tests and drugs, respectively, and assuming quality and the exemption rate remains unchanged, tests would decline by 1.4 million but would still generate a revenue increase of Birr 2.49. Similarly, prescriptions would decline by 1.4 million and revenues would drop by Birr 3.89 million. There would thus be a net decrease in revenues is of Birr 1.40 million. The small net decrease in revenues (3%) would be associated with a more pronounced decline in use (24% for exams and 41% for drugs). A small decline in costs would amplify the small net increase in revenues once costs were taken into account. Also much of the increased use and revenue would come at the expense of private drug retail outlets.

8.2.5 Estimating Scenario C

Assuming that fees remain unchanged from baseline and that improved quality (in the form of guaranteed availability of drugs) raises utilization of lab tests by 50% and prescriptions by 100%, and that the exemption rate remains unchanged, then paid tests would rise by 2.965 million to 8.895 million. Similarly, paid prescriptions would rise by 3.383 to 6.767 million. Revenues from tests would increase by Birr 8.9 million and revenues from drugs would increase by Birr 33.83 million. Total revenues would increase 83% to Birr 84.35 million. Improved quality as hypothesized, however, would be very costly and those costs would substantially offset the revenue gains by some unknown amount.

8.2.6 Estimating Scenario D

This scenario assumes the quality improvements of Scenario C. Now, assuming that fees are raised by 50% as in Scenario B, the tests in Scenario C would decline by 2.134 million but revenues from those tests would rise by Birr 12.63 million overall, and by Birr 3.73 million over the test revenues in Scenario C. Prescriptions would decline by 2.774 million, but revenues from those prescriptions would rise by Birr 26.05 million (compared to current baseline) and decline by Birr 7.78 million compared to the drug revenues in Scenario C. Total revenues in Scenario D would be almost as high as those in Scenario C, but Scenario D (with higher fees) would be associated with lower utilization than in Scenario C. Of course, once again, the associated costs of both scenarios would be unknown. They would be lower for

Scenario D than for Scenario C because utilization would be lower in Scenario D as compared to Scenario C.

8.2.7 A Summary of Illustrative Results

It is most significant that the implicit fee increase in lowering the exemption rate (by roughly half) shows a considerable impact on total revenues (an increase of 35%), and this is without changing any other feature of the system, and with some decrease in costs (since utilization declines). It is also significant that an explicit fee increase of 50% does not have much of an impact on total revenues, because utilization declines significantly.

Improving quality, however, holds the promise of increasing use and increasing revenues, even without raising fees.³⁶ If then fees are increased by 50%, utilization declines but total revenues remain roughly the same as for the scenario which only improves quality (and does not increase fees). Since there would be considerable costs associated with the increased utilization under both scenarios, the net impact on the budget would be less under the fee increase scenario than under a quality improvement only. The further policy change of fee retention by facilities would improve the collection rate by some unknown amount, and may also have an indirect positive impact on quality. This policy, and the impact of Regional Health Funds, are not taken into account in the above analysis.

³⁶ The assumptions made here do not reflect quantitative findings of our research, but some significant increase is surely indicated by the results and is strongly suggested in the literature.

References

- Abel-smith B. 1991. Financing health for all. *World Health Forum*. Vol.12.
- Abel-Smith, B. 1994. *An Introduction to Health: Policy, Planning and Financing*. Longman Group Limited.
- Akin, J.S., Griffin, C.C., Guilkey, D.K., and Popkin, B.M. 1986. "The Demand for Primary Health Care in the Bicol Region of the Philippines." *Economic Development and Cultural Change*.
- Alberini, A. 1995. Testing willingness-to-pay models of discrete choice contingent valuation survey data. *Land Economics*. 71(1):83.
- Basic Services for Child Survival (BASICS). 1998a. *Unit cost study of preventive and curative health services in Ethiopia*. Technical Report.
- Basic Services for Child Survival (BASICS). 1998b. *Study of constraints and opportunities of private sector participation in health care*. Technical Report.
- Basic Services for Child Survival (BASICS). 1988c. *Feasibility of community-based health insurance in Ethiopia*. Technical Report.
- Bitran, R. 1988. *Health care demand studies in developing countries: A critical review and agenda for research*. Arlington, VA: Resources for Child Health Project. John Snow, Inc.
- Bitran, R. 1989a. *Household demand for medical care in Santo Domingo, Dominican Republic*. Health Care Financing in Latin America and the Caribbean, Research Report No. 9.
- Bitran, R. 1989b. *A household health care demand study in the Bokoro and Kisantu Zones of Zaire, Vol. 3, Determinants of health care demand*. Arlington, VA: Resources for Child Health Project, John Snow, Inc.
- Birtran, R. 1994. *A supply-demand model of health care financing with an application to Zaire: A training tool*. Washington, DC: Economic Development Institute of The World Bank.
- Bitran, R., & McInnes, DK. 1993. "The Demand for Health Care in Latin America: Lessons from the D.R. and El Salvador," EDI Seminar Paper Number 46. Washington, DC, The World Bank.
- Bogale, T. 2000. *Coping strategies with the costs of illness among rural households in Goma District of Jimma Zone, Southwest Ethiopia*. MPH thesis. School of Graduate Studies, Addis Ababa University.

- Carrin, G. Community financing of health care. 1988. *World health forum*, Vol.9.601-606.
- Central Statistical Authority. 2000. *Ethiopia Demographic and Health Survey 2000: Preliminary Report*. CSA, Addis Ababa, Ethiopia and Macro International Inc., Maryland, USA.
- Chawla, M., & Ellis, RP. 2000. The impact of financing and quality changes on health care demand in Niger. *Health Policy and Planning*. 15(1):76 - 84.
- Diop, FP., Bitran, R., & Makinen, M. 1994. *Evaluation of the impact of pilot tests for cost recovery in Niger*. Health Financing and Sustainability (HFS) Project Technical Report No. 16.
- Donaldson, C. 1999. Valuing the benefits of publicly-provided health care: does "ability to pay" preclude the use of "willingness to pay"? *Social Science & Medicine*. 49:551 - 563.
- Donaldson, C., Farrar, S., Mapp., T., Walker, A., & Macphee, S. 1997. Assessing community values in health care: Is the "Willingness to Pay" method feasible? *Health Care Analysis*. 51:7 - 29.
- Engida, E., & Haile Mariam, D. 2000. *Assessment of the free health care provision system in northern Ethiopia*. Paper presented in the International Conference on Health Systems Financing in low-income African and Asian Countries, Cerdi, France 30th November - 01 December, 2000.
- Gertler, P.J., Locay, L., Sanderson, W., Dor, A., Van der Gaag, J. 1988. *Health care financing and the demand for medical care*. Living Standards Measurement Study, Working Paper No. 37, Washington, DC: The World Bank.
- Gertler, P.J., & Hammer, JS. 1997. *Strategies for pricing publicly provided health services*. Unpublished Review. The University of California, Berkeley & The World Bank.
- Haile Mariam, D., and Brenzel, L. 1998. *Study on the feasibility of community-based health insurance in Ethiopia*. Arlington, VA.: The BASICS Project.
- Kutzin, J., & Creese, 1995. A. *Lessons from cost-recovery in health*. WHO. Discussion Paper No. 2.
- Lavy, V., & Germain, JM. 1993. *The effect of quality and cost on health care choice in a developing country (Ghana)*. World Bank and Hebrew University.
- Lavy, V., & Quigley, JM. 1994. *Willingness to pay for the quality and intensity of medical care (low income households in Ghana)*. SMS Working Paper Number 94. The World Bank.

- Livtack, JI., & Bodart, C. 1993. "User fees plus quality equals improved access to health care: Results of a field experiment in Cameroon." *Soc. Sci. Med.* 37(3):369-383.
- Masako, L. 1993. "The Demand for Medical Care: Evidence from Urban Areas in Bolivia." Living Standards Measurement Study, Working Paper Number 123, Washington, DC, The World Bank.
- Ministry of Health, Ethiopia. 1998. *Health Care and Financing Strategy*. Addis Ababa.
- Ministry of Health, Ethiopia. 1999. *Health and health-related indicators*. Addis Ababa.
- Policy and Human Resource Development Project. 1998. "Unit Costs of Preventive and Curative Health Services in Ethiopia", PHRD, Report by Development Studies Associates, Addis Abeba.
- Ready, RC., Buzby, JC., & Hu, Dayuan. 1996. "Difference between continuous and discrete contingent value estimates." *Land Economics*. 72(3):397.
- Russell, S. 1996. "Ability to pay for health care: concepts and evidence." *Health Policy and Planning*. 11(3):219 - 237.
- Russell, S., Fox-Rushby, J., & Arhin, D. 1996. "Willingness and ability to pay for health care: a selection of methods and issues." *Health Policy and Planning*. 11(3):219 - 237.
- Ryan, M. 1996. "Using willingness to pay to assess the benefits of assisted reproductive techniques." *Health Economics*. 5:543 - 558.
- Ryan, M., Ratcliffe, J., & Tucker, J. 1997. "Using willingness to pay to value alternative models of antenatal care." *Social Science and Medicine*. 44(3): 371 - 380.
- Shaw, RP., & Griffin, CC. 1995. *Financing Health Care in Sub-Saharan Africa through User Fees and Insurance*. Washington, DC: The World Bank.
- Smith, RD. 2000. "The discrete-choice willingness-to-pay question format in health economics: Should we adopt environmental guidelines?" *Medical Decision Making*. 20(2): 194 - 206.
- Sow, B. 1994. "Survey on Willingness and Ability to Pay for Health Care in Three Provinces of Burkina Faso." HFS Project, Technical Note No 34, Abt Associates, Inc.
- Stalhammar, N. 1996. "An empirical note on willingness to pay and starting-point bias." *Medical Decision Making*. 16:242 - 247.
- The World Bank (Country Office in Ethiopia). 1999. *Ethiopia Public Expenditure Review*.

- The World Bank (Human Development, Eastern and Southern Africa Region). 1997. *Ethiopia: Social Sector Strategy Note*.
- Thomas, R., Donaldson, C., & Torgerson, D. 2000. "Who answers 'willingness to pay' questions?" *Journal of Health Services Research & Policy*. 5(1):7 - 11.
- Tsongo, B., Willis, C.Y., Deal, D.R., & Wong, H.J. 1993. "Cost recovery and quality of care in the Congo." Health Financing and Sustainability (HFS) Project Small Applied Research Paper No. 7. Abt Associates Inc.
- Valdelin, J., Walelign, N., & Fairbank, A. 2000. *Private Expenditure Trends in Ethiopia and Implications for Health Systems Financing*. Paper presented in the International Conference on Health Systems Financing in low-income African and Asian Countries, CERDI, France 30th November - 01 December, 2000.
- Walraven, G. 1996. "Willingness to pay for district hospital services in rural Tanzania." *Health Policy and Planning*. 11(4):428 - 437.
- Weaver, M., Kornfield, R., Chapko, M., Blewane, C., Ndamobissi, R., & Sathe, A. 1993. "Estimating the willingness to pay for quality of care: Comparison of contingent valuation and two-step health expenditure methods." Health Financing and Sustainability (HFS) Project Small Applied Research Paper No. 9. Bethesda, MD: Abt Associates Inc.
- Wouters, A., Adeyi, O., & Morrow, R. 1993. "Quality of Care and its Role in Cost Recovery with a Focus on Empirical Findings about Willingness to Pay for Quality Improvements," (Review of Concepts and Literature and Preliminary Field Work Design), HFS Project, Major Applied Research Paper No. 8, Abt Associates, Inc.
- Wouters, A. 1994. "Quality and Costs in Health Care Services Delivery for Developing Countries: A Three-Day Workshop, Trainer's Manual," USAID Quality Assurance Project, Academy for Educational Development, Bethesda, MD.

Annexes

Annex Table 1 Payments for services received by households (by type of provider)

	Consultation/Registration	Tests	Drugs
Home medicine/friends/neighbors			
Mean	8.1667	40.0000	38.3000
Median	6.0000	5.0000	27.5000
% of Total N	1.0%	1.0%	1.3%
Admitted to government hospital			
Mean	6.2636	15.0476	57.2426
Median	3.0000	5.5000	27.5000
% of Total N	9.1%	10.2%	6.8%
Admitted to NGO hospital			
Mean	11.6667	10.0000	22.5000
Median	1.0000	10.0000	12.5000
% of Total N	.5%	.2%	.5%
Service from pharmacy			
Mean	3.0698	9.9143	22.8944
Median	.0000	.0000	14.0000
% of Total N	7.1%	8.5%	14.7%
Saw traditional healer			
Mean	5.3000	6.5714	39.6333
Median	3.5000	6.0000	25.0000
% of Total N	1.7%	1.7%	1.9%
Saw community health agent			
Mean	6.0000	4.2500	18.0000
Median	2.0000	4.5000	10.0000
% of Total N	1.0%	1.0%	.6%
Visited government health station			
Mean	3.7199	11.4478	27.1888
Median	1.0000	5.0000	15.0000
% of Total N	30.8%	27.9%	29.3%
Visited NGO (HS/HC)			
Mean	13.0852	13.7745	88.9039
Median	2.5000	8.0000	17.0000
% of Total N	14.6%	12.4%	11.3%
Visited non-MD private clinic			
Mean	7.3714	9.6731	35.4914
Median	5.0000	10.0000	18.0000
Minimum	.00	.00	4.00
Maximum	50.00	22.00	330.00
% of Total N	5.8%	6.3%	7.3%
Visited MD private clinic			
Mean	13.8861	28.3795	64.9171
Median	10.0000	15.0000	31.0000
% of Total N	16.7%	20.1%	15.5%
Visited hospital OPD			
Mean	6.0408	17.0469	58.3971
Median	5.0000	10.5000	19.5000
% of Total N	8.1%	7.8%	6.5%
Whole valid Sample			
Mean	7.5031	15.8507	44.0216
Median	2.0000	8.0000	18.0000
% of Total N	100.0%	100.0%	100.0%
N	604	412	796

**Annex Table 2 – 5 Results of Regression Analysis on WTP
Logistic Regression of WTP for Family Planning Services**

	Condoms			Pills			Injectables			Implants		
	B	SE	Sig.	B	SE	Sig.	B	SE	Sig.	B	SE	Sig.
Urban	-.489	.326	.133	-.377	.298	.206	-.071	.270	.794	-.496	.364	.173
Age	-.010	.010	.329	-.018	.009	.050	-.008	.009	.400	-.001	.011	.944
Male	.033	.271	.903	.135	.252	.593	.243	.252	.335	.051	.311	.871
Married	-.455	.268	.090	-.060	.250	.809	.153	.248	.539	.213	.311	.494
Education	.261	.109	.016	.174	.101	.086	.264	.101	.009	.149	.124	.229
Income	.000	.000	.690	.000	.000	.127	.000	.000	.221	.000	.000	.803
HH size	.033	.045	.469	.000	.044	.998	.069	.043	.108	-.104	.052	.044
Distance	.005	.007	.434	-.002	.006	.998	-.006	.013	.619	.003	.003	.347
Amhara	-.655	.532	.218	-.348	.525	.508	.991	.542	.068	.157	.754	.835
SNNP	-.023	.549	.966	.169	.543	.755	.586	.571	.305	-.124	.779	.873
Tigray	-.513	.597	.390	-.180	.586	.739	.202	.607	.739	.292	.816	.720
Oromia	-.499	.494	.313	-.089	.498	.858	.495	.527	.347	.576	.725	.427
Price	-.571	.087	.000	-.122	.019	.000	-.088	.013	.000	-.043	.005	.000
Quality	-.032	.095	.738	-.088	.090	.331	.006	.090	.943	.024	.111	.831
Wait time	.004	.008	.566	-.001	.007	.860	.001	.007	.880	.007	.009	.421
Constant	.890	1.00	.375	.523	.953	.583	-1.31	.979	.180	-.440	1.24	.723

Logistic Regression of WTP for Family Planning Services

	VSC			Diaphragm			Advice on Abstinence		
	B	SE	Sig.	B	SE	Sig.	B	SE	Sig.
Urban	-.634	.403	.115	-.578	.334	.084	-.645	.313	.039
Age	-.003	.012	.786	-.009	.010	.347	-.012	.009	.204
Male	.119	.327	.716	-.004	.270	.989	.301	.251	.230
Married	.086	.327	.794	.068	.270	.801	.032	.245	.897
Education	.176	.131	.178	.101	.109	.352	.129	.101	.204
Income	.000	.000	.964	.000	.000	.277	.000	.000	.724
HH size	.115	.057	.045	.079	.046	.082	.043	.043	.311
Distance	.004	.006	.497	.005	.010	.622	.016	.012	.208
Amhara	-.346	.728	.635	.062	.592	.917	.104	.525	.843
SNNP	-1.073	.767	.162	.339	.612	.579	.412	.551	.455
Tigray	-.677	.825	.412	.350	.650	.591	-.080	.594	.893
Oromia	-1.299	.704	.065	.060	.564	.915	.077	.505	.879
Price	-.012	.002	.000	-.261	.037	.000	-.383	.068	.000
Quality	-.058	.117	.622	.026	.098	.792	-.002	.090	.980
Waiting time	.004	.009	.653	.007	.008	.335	.012	.007	.102
Constant	-.528	1.263	.676	-.754	1.038	.468	-.616	.949	.516

Logistic Regression of WTP for Pregnancy Related Services

	Consultation			Drugs			Delivery		
	B	SE	Sig.	B	SE	Sig.	B	SE	Sig.
Urban	-.361	.262	.169	-.217	.252	.390	-.382	.287	.183
Age	-.007	.008	.428	-.013	.009	.138	-.003	.009	.733
Male	.416	.242	.086	.274	.248	.269	.031	.252	.902
Married	.038	.237	.874	.328	.242	.175	.173	.247	.483
Education	.206	.097	.033	.222	.099	.025	.175	.101	.083
Income	.000	.000	.656	.000	.000	.969	.000	.000	.606
HH size	.070	.041	.090	.077	.042	.068	.056	.043	.186
Distance	.004	.009	.652	.002	.003	.609	.002	.003	.599
Amhara	1.000	.535	.062	1.561	.513	.002	.994	.549	.070
SNNP	.471	.559	.399	.890	.534	.095	.442	.574	.441
Tigray	.605	.580	.297	.782	.556	.159	-.007	.614	.991
Oromia	.834	.517	.107	1.135	.489	.020	.558	.526	.288
Price	-.060	.010	.000	-.108	.016	.000	-.002	.000	.000
Quality	.033	.087	.700	.036	.089	.687	.134	.091	.140
Waiting time	-.001	.007	.900	.003	.007	.718	-.010	.009	.279
Constant	-1.395	.943	.139	-.939	.945	.320	-.127	.972	.192

Logistic Regression of WTP for Child Care Services

	Consultation			Vaccination			Drugs		
	B	SE	Sig.	B	SE	Sig.	B	SE	Sig.
Urban	.218	.238	.361	.238	.252	.346	.357	.258	.166
Age	-.006	.009	.493	-.014	.009	.121	-.013	.009	.123
Male	.129	.245	.598	.359	.252	.154	.123	.253	.627
Married	.147	.241	.542	.247	.249	.321	.373	.248	.133
Education	.107	.098	.276	.261	.104	.012	.217	.103	.035
Income	.000	.000	.132	.000	.000	.217	.000	.000	.445
HH size	.027	.042	.521	.018	.043	.681	.049	.043	.259
Distance	.003	.005	.597	.001	.003	.654	.001	.003	.655
Amhara	1.545	.543	.004	1.574	.529	.003	1.529	.516	.003
SNNP	1.151	.573	.044	1.339	.553	.016	.854	.536	.111
Tigray	.482	.599	.421	.949	.573	.098	.536	.559	.338
Oromia	1.097	.527	.037	1.471	.511	.004	1.275	.494	.010
Price	-.113	.016	.000	-.412	.064	.000	-.150	.021	.000
Quality	-.068	.088	.439	.100	.092	.274	-.014	.092	.876
Waiting time	-.011	.008	.182	-.006	.007	.428	-.003	.007	.724
Constant	-.620	.951	.515	-1.051	.957	.272	-.320	.950	.726

Annex Table 6 Summary indicator on WTP for improved health service provision by region

Region	Type of facility	Statistics	WTP for reduced waiting time	WTP for improved skill	WTP for investigation	WTP for drugs
Addis ababa	Clinics	Mean	4.56	4.89	5.22	32.41
		Median	5.00	5.00	5.00	37.00
		% of Total N	22.69	22.31	22.50	22.69
	Health centers	Mean	10.85	12.88	7.98	39.10
		Median	13.00	13.00	5.00	37.00
		% of Total N	35.29	35.54	35.00	34.45
	Hospitals	Mean	12.76	11.37	10.71	46.18
		Median	16.00	10.00	9.00	45.00
		% of Total N	42.02	42.15	42.50	42.86
Amhara	Clinics	Mean	4.24	5.23	5.60	26.24
		Median	5.00	5.00	5.00	37.00
		% of Total N	61.75	61.69	61.75	61.69
	Health centers	Mean	6.60	8.49	5.60	25.94
		Median	5.00	7.50	5.00	37.00
		% of Total N	28.61	28.66	28.61	28.66
	Hospitals	Mean	10.36	11.75	7.64	44.30
		Median	16.00	16.00	9.00	40.00
		% of Total N	9.64	9.65	9.64	9.65
Dire dawa	Hospitals	Mean	15.06	8.56	6.94	34.06
		Median	16.00	10.00	8.00	32.50
		% of Total N	100.0	100.0	100.0	100.0
Oromia	Clinics	Mean	4.37	4.97	6.48	26.38
		Median	5.00	5.00	5.00	30.00
		% of Total N	44.49	44.57	44.43	44.52
	Health centers	Mean	9.05	9.76	7.32	30.08
		Median	13.00	10.00	5.00	37.00
		% of Total N	38.78	38.83	38.71	38.69
	Hospitals	Mean	11.55	11.39	9.30	43.66
		Median	16.00	16.00	9.00	40.00
		% of Total N	16.73	16.60	16.85	16.79
SNNP	Clinics	Mean	2.97	4.07	4.70	22.31
		Median	3.00	5.00	5.00	20.00
		% of Total N	52.82	52.32	53.04	53.16
	Health centers	Mean	6.88	6.97	6.27	21.81
		Median	5.00	5.00	5.00	20.00
		% of Total N	33.19	33.54	33.12	32.91
	Hospitals	Mean	5.79	8.76	6.64	32.76
		Median	3.00	5.00	5.00	30.00
		% of Total N	13.99	14.14	13.84	13.92
Tigray	Clinics	Mean	2.49	2.29	3.55	15.89
		Median	2.00	2.00	5.00	15.00
		% of Total N	37.10	37.10	37.10	37.10
	Health centers	Mean	6.04	10.13	5.62	23.79
		Median	5.00	10.00	5.00	20.00
		% of Total N	34.41	34.41	34.41	34.41
	Hospitals	Mean	8.23	8.45	6.84	36.72
		Median	5.00	5.00	7.00	30.00
		% of Total N	28.49	28.49	28.49	28.49