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CHALLENGES OF HEALTHCARE FINANCING: ECONOMIC AND WELFARE EFFECTS OF USER FEES IN URBAN ETHIOPIA

BY
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Declaration

I the undersigned, declare that this thesis is my original work and has not been presented for a degree in any other university, and that all source of material used for the thesis have been duly acknowledged.

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List of Abbreviations and Acronyms

ADLI	Agricultural Development Led Industrialization
ATP	Ability to Pay
CCS	Country Cooperation Strategy
CHA	Community Health Agents
CHC	Communication Health Clinics
CPR	Contraceptives Prevalence Rate
CSA	Central Statistics Authority
CSRP	Civil Service Reform Program
CT	Combination Therapy
DFID	Department for International Development
DHS	Demographic Health Survey
DOTS	Directly Observed Treatment Short Course.
DPPC	Disaster Preparedness and Prevention Center
DPT3	Diphtheria, Pertussis and Tetanus Vaccine
DRF	Drug Revolving Fund
EFY	Ethiopian Fiscal Year
EHSP	Essential Health Service Package
EQINET	a Southern African Equity research and advocacy Network
ERHS	Ethiopian Rural Household Survey
FDRE	Federal Democratic Republic of Ethiopia
FMOH	Federal Minestry Of Health
HC	Health Centers
HIV/AIDS	Human Immunue Virus/ Accured Immune Defecincy Syndrome.

HO	Health Officer.
HP	Health Post
HS	Health Stations
HSDP	Health Sector Development Goal
HSEP	Health Service Extension Programme
HW	Health Worker
GAVI	Global Alliance for Vaccience and Imminataion
GDP	Gross Domestic Product
GEV	Generalized Extreme Value
ICT	Information Communication Technology
IIA	Independence form Irrelevant Alternatives
IMF	International Monetary Fund
KSL	Currency of Kenya
MDG	Millennium Development Goal
MM	Modern Medicine
MMR	Maternal Mortality Ration
MoFED	Ministry of Finance and Economic Development
MNL	Multinomial Logit
MOH	Ministry of Health
NGO	Non Government Organization
NID	National Immunization Days
NMNL	Nested Multinomial Logit
N/A	Not Available
OED	Operations Evaluation Department
OP	Out Patient
OPV	Oral Polio Vaccine
PC	Private Clinics
PHC	Primary Health Care
PHCU	Primary Health Care Units
PHRD	Policy and Human Resource Development
PRSP	Poverty Reduction Strategy Paper

RHB	Regional Health Bureau
RUM	Random Utility Maximaization
RRR	Relative Risk Ratio
SDPRP	Sustainable Development and Poverty Reduction Program
SES	Socio Economic Status
SH	Specialized Hospitals
SSA	Sub-Saharan Africa
STD	Sexually Transmitted Diseases
STI	Sexually Transmitted Infection
TB	Tuberculosis
TBA	Traditional Birth Attendants
TM	Traditional Medicine
UK	United Kingdom
USAID	United States Agency for International Development
UNICEF	United Nations Children's Fund
VCT	Voluntary Counseling and testing
WB	World Bank
WHO	World Health Organization
WHOTERM	World Health Organization Terminology
WMS	Welfare Monitoring Survey
WTP	Willingness to Pay
ZH	Zonal Hospitals

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Abstract

This study examines the determinants of health care provider choice of urban households of Ethiopia. Particularly, it investigates the effects of user fees on the demand for health care by different segments of socio-economic group using multinomial logit model. The data source of the study is the Ethiopian Urban Socio-economic Survey conducted in 2004 by the Department of Economics of Addis Ababa University in collaboration with the Department of Economics, University of Goteborg in Sweden Cost recovery mechanisms were introduced based on the principle that health care demand in developing countries is price inelastic; so that more resources can be generated for the health sector without reducing the demand by the poor. But the results of this study reveal that for a given rise in health care cost, the poor will reduce the demand for health care significantly in greater proportion relative to the better off. In other words an increase in user fee is likely to drive out the largest portion of the poorest households from receiving medical care. The study also shows the poor are required to pay significantly greater proportion of their income to health care than the better off in order to get treatment. This will aggravate the existing inequality in access to basic health care services. Hence, even though the principle of cost recovery had been advocated as alternative means of health care financing in most developing countries, increasing user fee may drive the poorest population out of health care market or deepen their economic situation unless some reliable protective measures are taken.

***Key words**: cost recovery, equity, financing, health care provider, user fees.*

CHAPTER ONE
INTRODUCTION

1.1 Background

Health is a state of complete physical, social and mental well-being, and not merely the absence of disease or infirmity. Health is a resource for everyday life, not the object of living. It is a positive concept emphasizing social and personal resources as well as physical capabilities (WHOTERM 2000). The attainment of the highest possible level of health is very important world wide for social and economic sectors in addition to the health sector. This is because health preserves human capital, which is the major resource for economic development in all of the social and economic sectors. To get healthy population the financing system of the sector must be fair and sustainable; in the sense that, there should be universal access to quality health care.

As stated in the Alma-Ata declaration of 1978 and the World Health Declaration of 1998 health is a fundamental human right. The WHO constitution also states, the highest attainable standard of health as one of the fundamental rights of every human being to be enjoyed with out distinction of race, religion, and political belief, economic or social condition (WHO, 1946).

In low-income countries there is insufficient provision of public health services; the major reason for this being lack of funding. In the late 80s and 90s many developing countries, mainly in Africa, introduced charges for public health services in an attempt to use private

funds to ease the funding constraint. But in Ethiopia cost recovery in public health care system was established in the early 1950s (Fairbank, 2001).

The World Bank which at the time was promoting structural adjustment program requiring most low income countries to cut back on social spending emphasized the need for increased private payments for health care. The Bamako Initiative emphasized community participation in the form of payments for drugs, which would provide recurrent funding for health facilities (Arhin-Tenkorang, 2000)

User fees are fees imposed for primary health care or education (e.g. school fees, fees for using a health clinic). Health user fees refer to the payment of out-of-pocket charges at the time of use of health care at point of service. Often these services were previously provided for free or at nominal cost. The idea of charging user fees has been aggressively promoted by the World Bank and the International Monetary Fund, and the fees have often been a condition for new loans and debt relief. For example, 75% of ongoing World Bank projects in Sub-Saharan Africa in 1998 included the establishment of or expansion of user fees (Emmett, 2004)

User fees are one of cost recovery mechanisms. There are other options for financing better health such as taxation, donor assistance, charitable donations like church missions, and health insurance. User fees are expected to produce increased revenue to cover recurrent costs as a result of improved efficiency and equity, and increased quality and coverage by reducing frivolous demand and encouraging the use of cheaper health care.

Ethiopia is among those countries with a national system of fees. While fees accounted for about 16% of recurrent public health expenditure in 1986, they accounted for only 6% in 1995/96. Over the same period, however, Ethiopian's 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 (MOH, 2001)

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 2000, there were 103 hospitals (all denominations), 338 health centers (HC), 2029 health stations (HS), 833 health posts (HP), and 1119 private clinics in the country. Although no data is available on the number of traditional healers in the country, it is well known that many Ethiopian households use them for various health problems. The population per primary health care (PHC) facility was 27,456; and this was three times higher than the population per PHC in the rest of sub-Saharan Africa. The total number of hospital beds was 11,685; which meant that there was only one bed for a population of 4,900 and this was about five times higher than the average for sub-Saharan Africa (WHO, 2005).

1.2 Statement of the problem

Ethiopia is among countries with lowest health status in the world. This is mainly due to backward socio-economic development resulting in widespread poverty, low standard of living, poor environmental conditions and inadequate health services (MOFED, 2002). As with other developing nations Ethiopia has experienced extreme resource constraints with in the 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 (MOH, 2001).

The financing mechanism of the sector is based on the principle of cost sharing; so that, out of pocket payments will cover larger part of the health care expenditure. For instance, in 2001, out of pocket payments covered 85% of private expenditure on health in Ethiopia (Pearson, 2004). This made the poor to come up with coping strategies to pay for health services. As a result two out of three households in the country were using risky coping strategies (WHO, 2006); that is, the poor will reduce their consumption such as food and clothing and this deepens their poverty. Moreover they ration the use of health care and/or they fail to complete treatment. One of the reasons for the delays in care seeking is also cost. This will lead to even higher costs of treatment and increase in preventable deaths.

The charges also do not consider seasonal variation in ability to pay so that they do not help to spread financial burden over time. Similarly, Witter (2005) shows that, in Ethiopia most people do not go to health worker when ill. Of those who did, two thirds deepened their poverty to cover the health care costs: by selling their land, livestock, borrowing money or mortgaging their crops; reducing the sustainability of their livelihoods in the long term and with devastating consequences to children. Withdrawing children from school and falling into debt are other very common consequences of unaffordable health care. Others send their children to work to pay health care costs (Emmett, 2004),

The World Bank was one of the most prominent advocates of charging. It claims that user fees would produce increased revenue to cover recurrent costs as a result of improved efficiency and equity, and increased quality and coverage by reducing frivolous demand and encouraging the use of cheaper health care. But the introduction or increase in user fees or insurance reimbursement is likely to have different impacts in different population groups, hence on equity of financial access. So that further research is needed for each country before concluding like that. In particular the poor do not have frivolous demand even in the absence of user fees due to indirect costs of care seeking.

The positive and negative impacts of user fees on efficiency, equity, quality, and sustainability have led to heated debates. The evidence on the degree of response of demand to introduction of user fees is mixed; as a result Arhin-Tenkorang, (2000) suggests the re-examination of the theoretical benefits of user fee schemes. WHO (2006) argues that

out of pocket payments and user fees are not sustainable at macro level though they might help to raise some funds to keep the health service running at micro level.

At this time some international organizations are calling for the removal of the fees (James et al., 2006); and the World Bank has no clear stand whether to remove or retain the fees. Despite this the FDRE approved a health financing reform strategy in 1998 which calls for increased cost recovery in government sponsored health services and increased reliance on the private sector (MOH, 2001). It argues that the poor will not be affected since they included fee waivers and exemptions to protect them. But whether these safety-net programs are working or not is questionable. Some studies reveal the failure of systems in most SSA countries (Karanja et al., 1995; WHO, 2006; Russell and Abdella, 2002; Nyonator and Kutzin, 1999; Laterveer et. al., (2004)).

In Ethiopia, there are insufficient studies to give conclusive and clear knowledge of the effects of cost recovery mechanisms on health care demand of the population, (for instance, by Witter (2005), Abay (2004)). But this needs due consideration because unless access problem to basic health care is addressed, improving the health status of the population as well as achieving Millennium Development Goals will be difficult. This study tries to assess the impact of user fees on overall utilization of health care and the effects of revising it in selected urban areas of Ethiopia.

1.3 Objectives

The overall objective of the study is to explore welfare and economic effects of user fees on health care seeking behavior of different segment of the population by using discrete choice model. Specifically,

- To review the health service delivery system along with the major health problems and the alternative modalities of financing;
- To measure level of health care utilization and determinants of utilization in different providers; and
- Examine the impact of user fees on utilization of healthcare services.

1.4 Data Source and Methodology

The study uses secondary source of data, the Ethiopian Urban Socio-Economic Survey conducted in 2004 by the Department of Economics of Addis Ababa University in collaboration with the Department of Economics, University of Goteborg in Sweden.

Multinomial logit model of variable estimation is used to analyze the utilization level of health services in different providers and to investigate the impact of user fees on utilization by socio economic status of the population.

1.5 Significance of the study

Sustained economic and social development is unthinkable without human resource. To contribute for the development this resource should be healthy. But Ethiopia is among countries with low health status since the people face monetary as well as non monetary access problems to health care. This problem is serious in the rural parts of the country though the urban population has no equitable access to health services too.

This study tries to reveal the challenges with regard to cost recovery mechanisms due to the inability of both the government to adequately finance the sector, and inability of the poor to pay for healthcare costs. The problems associated with user fee, especially the disproportionately heavy burden placed on the poor households are overlooked. The study investigates the extent to which user fees are discouraging the demand for health care so that there will be better understanding of the reasons for low utilization rates of health care.

The results will help the concerned parties to re-examine the problem of cost recovery mechanisms by conducting further studies on the demand side and look for better ways of financing the sector based on empirical evidence. It also gives some highlights to governmental and non governmental organizations working in this area to focus on the problem and be involved in efforts to improve the situation.

1.6 Limitation of the Study

As this research is based on secondary data getting all relevant information was difficult. Problems are seen in the data entry. Specifically the health section of the data-base is not complete. For example, there are individuals who reported illness and sought care but are not asked from where they got treatment and how much they paid. More than half of the household's education level also is not reported fully. It seems that wrong data registered by the enumerator and this contributed to the insignificance of some variables.

These and other associated problems resulted in a large number of "missing data" which prompted dropping these incomplete observations from the analysis. This in turn resulted in a reduction of the sample size and possibility of introducing selectivity bias into the estimates.

Moreover, the estimation results could have been more representative were the model estimated by nested logit model than the multinomial logit. But the data structure was not appropriate to do so.

Therefore, these and other similar problems could have affected the quality of the data and hence the statistical analysis, which in turn might have led to inconclusive results.

1.7 organization of the study

This study is presented in six chapters. The first chapter gives a general background of the study, statement of the problem, objectives, significance and limitation of the study. Chapter two reviews literature on the means and strategies of financing the health sector with particular focus on user fees. Chapter three is concerned with overview of the Ethiopian health situation, health service delivery system, and ways of financing the sector and related issues. Chapter four specifies the analytical framework and methodology of the study where as chapter five reports results from the descriptive and regression analysis. Finally the last chapter presents conclusion and policy implications of the study.

CHAPTER TWO
REVIEW OF LITERATURE

2.1. Definitions

The following concepts and definitions are taken from WHOTERM (2000).

Financing

The function of a health system concerned with the mobilization, accumulation and allocation of money to cover the health needs of the people, individually and collectively, in the health system.

Cost recovery

Cost recovery is a financing system which transfers some or all of the costs of the health service on to users; through user fees, various kinds of private or community-based social financing or insurance plans (USAID, 1995). It is implemented through mobilization which aims at identifying and getting the money required to meet the health needs of the people, individually and collectively, in a given health system.

User fees

User fees refer to the payment of out-of-pocket charges at the time of use in health center. They are official payments made at the point of service. It prescribes the timing of the contribution relative to the time of needing and receiving health care (Arhin-Tenkorang, 2000). Another term for user fees is: “fee paid by the consumer of health services directly to the provider at the time of delivery. These fees include payments for examination, laboratory and medicines.

Coverage charges

Coverage charges ensure the household's eligibility to receive treatment from participating providers when needed, usually at reduced or zero charge. Familiar examples include insurance premiums, membership assessments by cooperatives, and deductions from pay for employer-sponsored health plans. Whereas user charges fall exclusively on the ill, coverage charges subsidize the cost of treating the ill. Coverage charges thus are closely bound up with risk sharing (De Ferranti, 2000).

Prepayment schemes

Fee paid by a potential consumer of health services in anticipation of services that may be required.

Revolving drug funds

Revolving drug fund is a system whereby drugs are provided to the supplier in the first instance either via donor, government or private funding. Revenues are meant to be kept within the system, to buy the medicines when it is finished. (Uzochukwu and Onwujikwe, 2005). One example is especial drug pharmacies.

Efficiency

Efficiency implies producing goods and services at the lowest possible cost. Given the limited resources available for health in developing countries, it is essential to raise and use resources as efficiently as possible. Any mechanism should raise adequate resources to support existing or expanded services, and must have the potential to raise additional revenue to meet the growing needs of health programs. The financing sources must be

stable or reliable in the sense that the level of revenue raised should not be undermined by the uncertainty or cyclical fluctuations in the economy (Mcpake, 1991).

Equity

Equity is a principle of being fair to all, with reference to a defined and recognized set of values. Access to health care is equitable if and only if there are no information barriers, financial barriers, or supply anomalies that prevent access to a reasonable or decent basic minimum of health care services (Moa Raberg, 2002).

Equity generally reflects a concern to distribute health care fairly in recognition of differences in health need. The question "who gains?" must, therefore, be asked in assessing the equity impact of health systems (Mcpake, 1991). In considering the impact on equity of health care financing options it is equally important to ask "who pays?"

Horizontal equity implies only those who benefit from/ use health care (that is, the sick or the potentially sick) should pay for it. Vertical equity is an alternative standard that the distribution of the burden of paying for health care should reflect differences in ability to pay which is more fair.

Equality

Equality is the "principle by which all persons or things under consideration are treated in the same way" (Moa Raberg, 2002); that is, it is a stricter principle than equity.

Quality

The dimension of quality includes equity, accessibility, appropriateness, acceptability, comprehensiveness, effectiveness and efficiency of a health service.

All of the dimensions are important. Hardee and Smith (2000) list three important factors for good-quality services: availability of drugs, cleanliness of the health facility, and attitude of the health staff.

Opportunity cost

The opportunity cost of accessing and using health services can be estimated by asking the question 'what is the next best thing I could do rather than traveling to a clinic and what would the benefit be if I did it instead?' In most cases the opportunity cost of seeking health is the income that would have been earned from work rather than using health service (Moa Raberg, 2002).

Fee waiver

According to MOH (2003), fee waiver is the right conferred to an individual that entitles him or her to obtain health services in certain health facilities at no direct charge or reduced price due to lack of ability to pay.

Exemption

It refers to a service that is provided at no charge to all patients on the account of addressing public health goals where the market often fails to deliver due to existence of externalities (MOH, 2003). A precondition for the equity of cost recovery especially in the form of user fees is that there is a system in place which, for example, exempts the poorest, chronically ill and/or children from paying any of or the full fee for health services. But in most literatures exemption is used to refer to both fee waiver and exemptions.

2.2 The Conceptual Framework

Faced with inadequate and declining funding for Ministry of Health Services, many African ministries have recognized they cannot meet their traditional commitment to provide a basic level of health care, free of charge, to the whole population. Thus most sub-Saharan African countries have adopted policies to shift from full government funding by MOH budgets to partial cost recovery for publicly provided health services. The most common cost recovery technique that ministries have adopted is user fees for services, medicines, or both (USAID, 1995). Thus user fee revenues have been the only source of finance for non-salary recurrent costs (Mcpake, 1991).

Table 2.1 below shows the 28 African countries that, as of 1994, had begun or put into effect national health sector cost recovery programs. Many of these countries (e.g., Ghana, Kenya, Lesotho, Malawi, Mozambique, Namibia, and Zambia) have made revenue raising the primary objective. Others emphasize quality improvements for primary care, such as personnel incentives or assuring drug availability (USAID, 1995).

Table 2.1: Countries in Africa that have begun or adopted national cost recovery reforms

Anglophone countries	Francophone countries
Gambia, Ghana, Kenya, Lesotho, Malawi, Namibia, Mozambique, Sudan, Nigeria, Swaziland, Tanzania, Zimbabwe, Ethiopia, Guinea-Bissau, Sierra Leone, Zambia, Equatorial Guinea,	Benin, Burundi, Cameroon, Mauritania, Central African Republic, Cote d'Ivoire, Guinea, Mali, Senegal, Burkina Faso, Togo, Rwanda

The World Bank in the 'Agenda for Reform' 1987; argued that user fees would generate revenue, improve quality, promote efficiency, foster equity and enhance sustainability (World Bank, 1987). Several theoretical arguments justify the feasibility of these goals. First, user fees will raise the cost of health care above zero; so that people would not seek health care when they do not really need it. This means there will not be frivolous demand. Thus more resources would be available for those who are truly in need. Secondly, user fees will increase revenue in the health sector. They argue that this will happen because sick people have low 'price elasticity of demand' for healthcare (that is, when they need it, they will pay for it even if the cost goes up). Third the money collected will be invested in quality improving services; as a result of this, utilization and coverage will also increase. Fourth, user fees could influence the type of care sought. If fee were set higher in hospitals, this could encourage people to use primary care for less serious complaints. This would rationalize the pattern of care and improve the efficiency of the health services as a whole.

According to the Bamako Initiative the fees are to be retained and re-invested locally at the health institution to produce the expected equity and efficiency gains. But Emmett (2004) said that there is weak link between cost recovery and service performance.

Overall it is argued that price signals from user charges could help restore efficiency in the referral system; zero prices hinder a health system from efficiently directing users to places where unit costs for particular services are lowest. Demand for health care rises proportionately with income. Charging those who use expensive curative services most frequently and are able to pay could supplement public coffers and raise funds to subsidize

those least able to pay, thereby fostering equity. It has also been argued that user charges and other types of cost recovery are important to ensure the sustainability of publicly provided health services as well as the improvement of quality (Nii Ayite, 1997)

Likewise, various researchers (Paul et al., 1995; Arhin-Tenkorange, 2000; world Bank, 1987) argue that health care demand in most developing countries is price inelastic, so that enough resources can be generated with out significantly affecting the current demand patterns. In contrast, others contend that user fees have different impact on different segment of the population.

The negative impact of user fees on the poor is seen in many countries. Most advocates of user charges recognize this fact and suggest the need for policy adjustments about equity. The World Bank's (1987) argument regarding equity requires redistribution of collected revenues to new facilities. But, this may conflict with the aim of using revenues to improve quality in existing facilities, particularly where the volume of revenue raised is quite low (Mcpake, 1991)

James et al., (2006) note that the poor were particularly more sensitive to prices. They are most likely to stop using services, as their willingness and ability to pay is lowest. The high access and indirect costs faced by the poor in developing countries – travel costs, time off work, etc – mean that demand is already suppressed, and user fees will increase inefficiency. Uncertainty about prices they will be charged, and seasonal variations in income, are also factors which deter poor people in particular (Witter, 2005).

In contrast some researchers maintain that the negative impact of user fees can be outweighed if other factors that negatively affect health care demand, such as poor quality of services, unavailability of basic drugs, long waiting and traveling time are improved through the introduction of user fees (Abay et al., 2004). This was the main hypothesis behind user fee recommendations of the 1970s (Paul et. al., 1995; world Bank, 1987). But Arhin-Tenkorange (2000) argues that those models primarily explored point elasticities; which are elasticities of health care demand with respect to price and income moreover they ignored the fact that there is a trade-off between health and consumption of other commodities; that is, people could pay to heath care but at the expense of other essential consumable goods.

In the same vein, James et al., (2006) argue that poor households access to care by reducing consumption of food, and using various other coping mechanisms, or had to endure catastrophic health expenditure. Furthermore, Mcpake (1991) states that, when low income households are willing to pay the implications for other parts of their budget may produce a 'poverty ratchet' effect. In other words; although increases in health care prices may not reduce the total care demanded, the price increases will have an income-depressing effect, reducing the consumption of other goods through the diversion of resources and this may perpetuate or aggravate other health problems.

According to the theory of allocative efficiency market transaction can be applied for goods that do not have characteristics that might lead to market failure. This are: non-rival in consumption, non-excludability and high degree of externality.

In the case of public good, the market demand curve is arrived by the vertical summation of individual demand curves. This follows from the fact that each individual consumes the same amount equal to the total amount; thus, allocating public goods efficiently requires that the sum of marginal private benefits equal the social marginal cost. In the presence of externalities on the other hand, the efficient allocation of goods require a solution whereby the utilization is optimal at the point where marginal cost of delivery equals the social marginal valuation – the sum of private and societal evaluations. Incorporating externalities in the supply/demand analysis introduces the 'social demand' curve that lies above the private one.

In the absence of user fees the cost faced by the consumers is access cost (James et al., 2006). If private access costs faced by the consumer are greater than the price that leads to optimal levels of utilization then an incentive payment (as opposed to a fee) is required to raise welfare and promote efficiency. If private access costs are lower than the optimal price, introducing user fees could be efficient leading to welfare gains by discouraging utilization (Arhin-Tenkorange, 2000).

Based on the theory, Arhin-Tenkorange argue that among the different types of health care, the potential candidate for user fee based market transactions to be curative health care as opposed to preventive health care. Similarly De Ferranti (2000) argues that the externalities arising from curative care are low therefore; it is feasible to implement user fees as a means of increasing the available resources for health care and increasing efficiency and equity.

De Ferranti (1985) suggests different pricing strategies for the different types of services which are related to health care. Three types of services are explored: non patient related preventive services; curative services; and patient-related preventive services.

Preventive services: non-patient related. These services have no direct patient contact therefore it would be difficult or costly to charge individuals. The beneficiaries of these services are identifiable as the target population and most of them do not even know they have benefited. For this type of services, he argues, true user charges are not feasible because of an exclusivity problem; that is, there is no feasible way of limiting benefits to those who do pay and everyone therefore has incentive not to pay. For instance, with sanitation services the main health benefits are social benefits and are external to the users. For mass immunization, there may be a conflict between the underlying objective of mass coverage and the scope for individual decision-making that user charges imply.

The presence of externality for these services, particularly immunization, means that private and social demand relationships are not identical. Users may have lower demand than the society decides as appropriate. The combination of externalities and lack of information may be enough, in some contexts, to set prices below marginal cost or to provide information (e.g., health education) to increase demand (Arhin-Tenkorange, 2000). Overall, user charges may not be feasible for non patient related preventive services and there is even a case for making incentive payments to consumers to encourage consumption (Mcpake 1991).

Curative services. De Ferranti argues low or zero charges levied on many curative services should be increased. He notes that since curative services account for the great majority of resources consumed by the health sector, whatever policy adopted with regard to user charges for these services will largely determine the degree of cost recovery for the health sector as a whole. Overall he argues for a greater use of user charges for curative services.

The opposite position is that such an assessment understates the level of external benefits associated with curative care, in particular when the spread of infections is curtailed and productivity losses are avoided through early treatment. Stanton and Clemens (1989) and Arhin-Tenkorange (2000) take the position that curative care is associated with significant positive externalities.

Preventive services: patient related. Charging is feasible here since there is direct patient contact. For example, maternal and child health care, family planning, etc. But there may be plausible reasons of externalities and a lack of information on the user's part. Collection costs and administrative constraints may also play a part for setting charges.

With regard to this; De Ferranti (2000) gives a detailed analysis of services to be charged and those that should be exempted. He argues that some services will frequently be suitable for expanded application of user charges, while others will be candidates for exemption user charges. (See table 2.2)

Table 2.2: Suitability of health services for user charges

Group I
• Disease control programmes, including
➢ Vector control (e.g., spraying against malaria mosquitos)
➢ Population prophylaxis (e.g., mobile teams that immunize or deparasitize whole villages)
➢ Environmental intervention (e.g., removing vegetation from stagnant waterways to control schistosomiasis)
• Sanitation
➢ Human waste disposal
➢ General sewerage
➢ Inspection (e.g., of food purveyors and processors)
• Education and promotion on health and hygiene
➢ Through institutions (e.g., schools)
➢ Through media (e.g., radio, posters)
• Control of pests and zoonotic diseases
➢ In domesticated animals
➢ All other
• Monitoring (e.g., for outbreaks of communicable diseases)
Group II
• Maternal and child health out-patient services (mostly preventive care for well patients)
• Family planning
• Preventive aspects of village health services
• Rural water supply
Group III
• General out-patient services (mostly consultations for ill patients)
• In patient services
➢ General (bed and nursing)
➢ Special services (deliveries, surgery, etc)
• Curative aspects of village health services
• Drug sales to individuals (excluding medicines used as an integral part of other mentioned above)
• Urban water supply

Source: Paying for Health Services in Developing Countries: a call for realism. World Health Forum, 6:99-105

De Ferranti (2000) argues that for service in group I, user charges will typically be impracticable or socially undesirable. These Group I services are provided predominantly

or exclusively by the public sector, and exempting them from charges will not result in any incompatibility with private sector charging practices.

He contends that Group II services are more borderline. For several of them, prevailing opinion tends to oppose charges strongly. Yet fees are possible and already exist in many private facilities. Whether they are desirable or not depends on the situation. In general, countries should strengthen their policies with respect to Group III services first, before cautiously considering charges for Group II.

Group III services account for the largest share of total health expenditure, amounting to 50-80% in many countries. User charges are prevalent among private providers and at some public facilities. In general, greater use of well-designed fees at public units would be beneficial. For out-patient services, a minimum first step would be a nominal charge for a first consultation on a given illness episode, with no extra cost, irrespective of the follow-up care needed.

One of the rationales for the introduction of user fee was thought to be strengthening the appropriate use of the referral system by patients. This was expected to facilitate the reallocation of resources to cost effective primary care and to rationalize utilization and 'frivolous' consumption of health services (Laterveer, 2004; Witter, 2005; World Bank, 1987).

Proponents of user fees argue that in situations of free public provision of health care, where financing is also largely public there will be a moral hazard problem: that is, there will be excessive use (inappropriately high consumption). In contrast to this Arhin-Tenkorange argue that poor consumers in developing countries most likely face significantly higher prices (access costs) so that they do not have optimal consumption function of health care to enhance the global utility function.

Arhin-Tenkorange observed that the impact of user fees is greater on the poor who already face relatively higher access costs (most tertiary facilities are in urban areas and the poor live in rural or per-urban areas) and are therefore not the main cause of moral hazard. He concludes therefore that the introduction of user fees for 'demand reduction' is justified only when there is clear evidence of unjustified over-utilization (true moral hazard) of the specific intervention.

Besides, Save the Children (2005a) asserts that fees mean that families do not seek care for their children on the basis of what they need but on the basis of what it costs. Families wait, until it is too late, to go to the doctor. If they finally seek treatment, the charges levied mean that precious resources are spent on payments, plunging many families into destitution. Arhin-Tenkorange concludes that the effect of user fees is to ration rather than rationalize the use of a specific intervention.

2.3 Empirical Literature

This empirical review of the literature assesses the impact of user fees against their proposed objectives in different countries which is reviewed in the theoretical literature above.

The reform of health care systems is supposed to make access to health care better. But in the particular case of user fees, the opposite effect was observed. During the 1980s and 1990s, health sector reforms to improve the efficiency of health systems and the quality of care provided were implemented in low-income countries, mainly in Africa. The reforms included the introduction or consolidation of cost recovery mechanisms, otherwise known as user fees. In most instances, user fees had the unintended effect of decreasing access to health care by the poor. The conclusion drawn by many scholars is that alternate financing mechanisms are required to provide financial risk protection to people in low-income households (USAIDS, 1995).

Arhin-Tenkorange argues that despite the rhetoric of efficiency and equity objective of user fees from the architects of the international policy initiatives cited above, user fees have mainly been presented as a credible means of raising additional revenue for the health sector in national strategies.

A recent world wide survey of cost recovery objectives in the hea1th sector in 26 countries found that most countries had multiple objectives, but nearly all cited raising revenues as a primary objective. Nine countries (Cameroon, China, Honduras, Iran, Kenya, Mexico,

Nepal, Thailand, and Uganda) also cited improving the quality and extending the coverage of health care services. Seven other countries (Jordan, Iran, Kenya, Namibia, Papua New Guinea, South Africa, and Sudan) sought to discourage unnecessary visits and prevent bypassing of lower level facilities (USAIDS, 1995)

2.3.1 User fees and utilization by socio-economic status

It is reasonable to assume that poorer groups will have difficulty in paying for health care. Fees will only promote equity if they are affordable to all groups in the population and do not act as a barrier to utilization (Gilson and Mills (1995).

The majority of the studies in Africa demonstrate adverse effects of user fees on health care utilization. Table A-2-1 in appendix A summarizes the results of studies made by different researchers on the impact of user fees on access in 23 African countries. From these only three countries – Benin, Cameroon, and Mauritania – showed clear positive effects of user fees. User fees had mixed results in Zambia, Kenya, Mali, Niger, Nigeria, and Cambodia. The impact of user fees in the remaining countries is found to be negative (James, 2006).

In Kenya, user fees were introduced in government hospitals and health centers in December 1989 and only nine months after the introduction of this fee system in September 1990, the registration fees were removed. The proportion of severely ill people who did not consult any modern health worker was 12% during the full-fee period and fell to 4% after registration fees were lifted. This suggests that the registration fees had constituted a barrier to access to care (Karanja et al., 1995).

Karanja et al. argue that consumers are sensitive to relative prices or alternative prices of modern healthcare. As prices rose in some government facilities, the demand for their services fell, even though they were probably of better quality. He observed that the ultra-poor made much less use of government hospitals and health centers, the only facility with laboratories. The average number of visits to these facilities per 100 episodes of severe illness was 42.4 for the least poor, 31.6 for the middle poor and 21 for the ultra poor.

On the other hand, the relative importance of mission and private clinics rose as income fell. The difference in the patterns of utilization was statistically significant. Two possible reasons why the ultra-poor preferred to use mission and private clinics are that they were unwilling to pay for transportation to government referral facilities, and that the mission clinics exempted some of them from paying fees. Government dispensaries were frequently out of drugs and were believed to provide an inferior service.

Karanja et al., (1995) note similar results reported by others which show that the poor were more sensitive to prices than the rich. They also found that utilization of hospitals and clinics by people in the bottom three quarters of the income distribution would be substantially reduced if prices (user fees) were raised. They argued that uniform fees (like those in Kenya's hospital and health centers) would be regressive because they would reduce utilization by the poor more than by the rich. They advocated price discrimination in favor of the poor.

There is also some evidence to suggest that in specific circumstances, fees increase the utilization of services by the poor. A study from Cameroon has shown that the poor can benefit from fees if fee revenue is retained by the collecting facility and used to improve the perceived quality of services in this case by improving drug supplies (Pearson, 2004). As a result the local population no longer had to travel to more distant providers to obtain more expensive and possibly less effective drugs. But in contrast, Uzochukwu and Onwujikwe, (2005) argue that retention of the revenue by the collecting facility will create inefficiency because of supply-induced demand and poly-pharmacy. Others argue that retaining fees at facility level will create sustainable inequity (Nyonator and Kutzin, 1999).

Availability of drug was argued as one of the quality improving activities and was thought to increase utilization. But the evidence from Nigeria on drug revolving fund (DRF) which insures the availability of drug is not as was thought. The Nigerian Government announced the restructuring of its Primary Health Care system through the Bamako Initiative which incorporated the establishment of DRF (Uzochukwu and Onwujikwe, 2005). They argue that one of the advantages of DRF is the constant availability of drug which has led to a high satisfaction among consumers. However, they had their resentment about the fees charged which could be a drawback of the DRF scheme. Prices tend to deter utilization. This could exclude the poor from accessing vital treatment and preventive services. This would potentially defeat one of the major aims of marking drugs available through the DRF since many poor people, especially in the rural areas that already have very low utilization rates for health services would keep being denied of essential services.

In 1985, the government hospital fees in Ghana were revised, such that the first visit to a specialist was ten times the minimal daily wage and incorporated charges for drugs that reflected their real cost. Monitoring of the program indicated that by 1987 the target of recovery of 15% of recurrent budget had been achieved at the cost of substantial declines in the utilization of health care services. The decline was greater and more sustained in the rural than in the urban areas (Arhin-Tenkorange, 2000).

Models of cost sharing for Zambia concluded that high fees would lead to considerably less revenue generation than more moderate pricing of health care. Ghana's 15% of recurrent cost revenue was not sustained and the typical cost recovery ratios have been in the range of 1%-12% at least in the early periods of the introduction of the policies till the 1990s. Given this low revenue performance of user fees, development assistance remains the most viable instrument for addressing the resource constraint faced by the health sectors of developing countries (Nyonator and Kutzin, 1999).

Hutten (2002) cited the report of UNICEF which says most people were not visiting clinics and hospitals in Zimbabwe because they can not afford hospital fees. Similarly in South Africa studies found that, user fees decreased utilization of curative health care although effect on preventive care is negligible. However, following user fee introduction Benin, Cameroon, Mali, Mauritania, and Niger, obtained quality gains which offset price increases either fully or partially; so that, the aggregate effect on utilization was positive or negligible. In Tanzania utilization patterns have not changed much since the introduction of user fees.

In general, several health care utilization studies showed that following fee introductions there were significant reductions in the utilization of health services in all of the above countries (Arhin-Tenkorange, 2000)

2.3.2 Fee Waivers and Exemptions

Opponents of cost recovery programs focus on inequity as a major drawback to the policy of user charges. The large body of empirical evidence on the impact of user fees on utilization of health care services suggests that user fees are regressive and inequitable, in that poor people pay a greater proportion of their incomes out of pocket for health care than those who are better off, unless there are effective exemptions in place to protect them and the quality of health care is simultaneously improved (Nanda, 2002).

Similarly, Paul et al., (1995) argue that user fees can in, principle, promote equity of health financing if they are accompanied by targeted exemption for the poor. In theory, such a system would enable payment according to ability, and would release more public resources to finance health services for poorer sections of society. Information from survey, however, suggested that practice differs from theory. Targeted exemptions for the poor were not provided in a large minority of countries and in all the countries where a policy to subsidize the poor did exist, respondents expressed doubts about policy effectiveness, and identified the factors constraining implementation. These factors included informational and administrative weaknesses: it was not clear which groups ought to qualify for exemption; how these people were to be identified; and the capacity to identify and reach

these groups was often lacking. Other processes reducing the effectiveness or consistency of implementation included: staff reluctance to grant exemptions; leakages or subsidies to those able to pay; and users' reluctance to claim subsidies despite being eligible.

The World Bank included fee waiver and exemption systems to protect the poor. So that, in most countries user fee legislations and programs has incorporated principles to deal with the problems of inequity and inefficiency. The design of most cost recovery programs have price structures and exemption mechanisms to bring about positive efficiency and equity impacts (Nii Ayite, 1997).

But Emmett (2004) argues that the impact of cost recovery on poor people is not offset by exemption schemes or improvements in service quality or efficiency, because user fees are difficult to administer and most of the time they are abused and are administratively complex leading the poor to pay fees to get the entitlements.

An international survey of health service user fee and exemption policies in 26 low-and middle-income countries assessed whether user fee policies were supported by measures that protect the poor. It found that 27 percent of countries had no policy to exempt the poor; in contrast, health workers were exempted in 50 percent of the countries. Even when an official policy to exempt the poor existed, there were numerous informational, administrative, economic and political constraints to effective implementation of these exemptions. In interviews with key informants, 80 percent thought the main constraint was identification of those eligible; 61 percent named provider reluctance; and 44 percent cited user reluctance to claim (Russell and Gilson, 1997).

Another recent international study of waivers and exemptions makes clear that if these are to work properly, they need to be funded (so that producers do not lose income by granting exemptions), with clear and well-publicized criteria of entitlement. In countries with greater resources and more efficient administrative systems, such as Thailand and Indonesia, some successes have been documented. Some models (e.g. health equity funds being piloted in Cambodia) have also gone beyond direct costs to offer assistance with transport and food as well. But these continue to be dependent on outside support, both technically and financially (Nyonator and Kutzin, 1999).

Evidence from Southeast Nigeria indicated that there are insignificant differences in costs for treating malaria across the socio-economic status (SES) quartiles. This reflects inequity in the costs, because the poorest households are spending a greater proportion of their income to treat malaria. And he suggests pricing policies that ensure the poorest groups pay less money for combination therapy (Onwujekwe et al., 2004).

In Benin, where the local health committee was left to decide exemption criteria, only victims of natural disasters and abandoned women were exempt from payment. Reliance on such community exemption mechanisms still fails to address the question of who makes decisions on behalf of the 'community' and who may be excluded from consideration as a result (Mcpake, 1991).

The other issue is that the presence of direct clash between effective exemptions, which allow access for vulnerable groups, and the objective of raising revenue, especially in low-income countries where a majority of the population may fall into the groups which merit exemption. That is, exemptions may undermine the cost recovery capacity of the system.

In general, Arhin-Tenkorange reported the failure of the policies to protect the incomes and access to health care of the poor, especially because of the negligible level of exemptions. The World Bank's Operations Evaluation Department (OED) also reported the widespread failure of exemption systems to adequately protect the poorest citizens from health clinic user fees. In most African countries such exemptions tend to benefit wealthier groups (such as civil servants). For example, on Ghana's Volta Region in 1995 less than 1 percent of patients were exempt from health user fees and 71 percent of exemptions went to health service staff". And according to a January 2000 UNICEF paper ("Absorbing Social Shocks, Protecting Children and Reducing Poverty"), cited in World Bank (2005) remarkably little evidence exists on the effectiveness of exemption systems for user fees.

2.3.3 Willingness and ability to pay

In applied microeconomics, ability to pay (ATP) is subsumed under willingness to pay (WTP); that is, ability is implied by willingness. Thus if some one is willing to pay it implies he or she is able to pay (MOH, 2001). Similarly, Russell (1996) reveals that research and policy debates on willingness to pay for essential services have tended to assume that WTP is synonymous with ATP. But he questions this assumption; and suggests that WTP may not reflect ATP.

He argues that households may persist in paying for care, but to mobilize resources they may sacrifice other basic needs such as food and education, with serious consequences for the household or individuals within it. The opportunity costs of payment make the payment 'unaffordable' because other basic needs are sacrificed. An approach to ATP founded on basic needs and the opportunity costs of payment strategies (including non-utilization) is

therefore proposed. From the few studies available, he cited common household responses to payment difficulties which range from borrowing to more serious 'distress sales' of productive assets (e.g. land), delays to treatment and, ultimately, abandonment of treatment. Although these strategies may have a devastating impact on livelihoods and health, he states that only few studies have investigated them in any detail. Lastly he suggests in-depth longitudinal household studies to develop understanding of ATP and to inform policy initiatives which might contribute to more affordable health care.

Pearson (2004) also maintains that an important distinction needs to be made between willingness and ability to pay. Even where people do use services the financial cost of doing so can have major implications as they may need to resort to savings, borrowing (often at high levels of interest) or even worse sale of assets. This is generally less important for primary care where the costs of services tend to be lower but more of an issue for inpatient care or chronic ill health. The seasonal availability of cash resources is also a factor in communities relying heavily on agriculture.

A number of studies agree that, in many of the world's impoverished countries, the imposition of user fees for basic education and health care has locked the poorest people out (Arhin-Tenkorang, 2000; Di Mclntyre and Gilson, 2005; Save the Children, 2005b; Laterveer, 2004; etc). The studies by these researchers show that, the fees have led to increased illness, suffering and death when people can not pay for health services, and decreased school enrollments when poor families can not afford to send children to school.

A study on WTP for combination therapy (CT) for malaria based on user fees in Southeast Nigeria show that people in the highest socio-economic status (SES) quartile were more willing to pay than the lowest SES quartile. The people that were unwilling to pay were mostly in the poorest quartile. The major reason that people were not willing to pay was due to un-affordability of the therapy. Most of the respondents were willing to pay for CT but the costs of treating malaria were much more than the mean WTP (Onwujekwe et al., 2004).

2.3.4 Expenditure, revenue, and sustainability

Private expenditure dominates the financing of health services in both Asia and Africa. The vast majority of private expenditure is accounted by out of pocket expenditure which has long been recognized as an inefficient and inequitable way of financing health care. Risk pooling is generally minimal and confined to the better off. There is some evidence that health spending is increasing as a share of GDP in both regions and that the public share of health spending is increasing in Africa – probably reflecting greater aid flows and resulting in increasing levels of aid dependence. Financing patterns vary widely within regions and averages are highly skewed by China and South Africa (Pearson, 2004).

Lack of government funding for health is a major constraint. Evidence is now emerging that most countries with a few notable exceptions, are not progressing towards the Abuja target of 15 percent of government spending on health. In many countries it is still less than 7 percent and in some as low as 3 to 5 percent (James et al., 2005). Pearson (2004)

indicated that within the African context only Uganda and Mozambique trying to exceed the Abuja Declaration target of allocating at least 15% of government spending to health.

Governments in the highest income sub-Saharan African countries currently spend about 7 percent of their total budgets on health care; middle-income African countries, 5 percent; and the lowest income countries, 2.6 percent. Irrespective of whether any of these governments could or should spend more, consensus has been growing that the traditional, complete reliance on government (general revenue) funding has not produced the quantity or quality of health services that African people and governments want. Neither can the system sustain or increase desired improvements in health status (UNAID, 1995).

Average expenditure on consultations and drugs during an episode of severe illness was related to household income. In Kenya, the least poor spent Ksh 72 per episode compared with Ksh 43 for the middle-poor and Ksh 27 for the ultra-poor. These patterns of utilization and expenditure suggest that household income strongly influenced the choice of provider and that user charges impede access by the poor to what was probably better quality care. (Karanja et al., 1995).

Regarding revenue, studies on official user fees have rarely found a large share of total revenues for the health sector. For instance, in 16 sub-Saharan African countries, fees generated an average of around 5% of total recurrent health system expenditure, gross of administrative costs (Paul et al., 1995; Witter, 2005). Still, the revenues have often amounted to important sums at the local level, in the absence of central government

investment in peripheral level health facilities and problems with the flow of funds from the center to periphery of the health care system. In contrast, out of pocket expenditure typically account for at least 50% of health expenditures in low-middle income countries, and often more: for example, they are almost 80% in India (Pearson, 2004).

The importance of fees as a potential source of revenue in the developing country context can be assessed by actual cost recovery experiences in countries. Some studies in Africa show that revenue from user fees has traditionally covered only 6-8 percent of recurrent expenditure even with out taking account of the administrative cost of fee collection process (Mwabu, 1990). Nii Ayite(1997) argues that this 6 to 8 percent revenue can positively affect quality of health care at the facility level though they are insignificant at national level.

In contrast Arhin-Tenkorange argues that user fees do not generate much revenue, are unlikely to improve allocative efficiency, and often disproportionately affect poor people. So that, development assistance remains the most viable instrument for addressing the resource constraint faced by the health sector of developing countries.

The effects of user fees on sustainability are mixed. Some studies show that health care utilization rates are not adversely affected by small increases in user fees, particularly if the quality of care improves. Furthermore, the revenue generated by fees can give providers an incentive to deliver better quality care, thereby leading to increased utilization and lower unit costs. Others contend that user fees can force, and have forced, poor women and children to forgo needed health care (Hardee et al., 2000). The study also found that quality

improvement and cost containment, particularly with respect to drugs, and the method of cost recovery (tax and small fee-for-service or pure fee-for-service) were important factors in achieving sustainability.

2.4 Experience of user fee Elimination

Studies on the effects of abolishing user fees are few and the assessment of its impact is complicated by the fact that it is difficult to disentangle the effect of changes in the user fee regime with those of other ongoing reforms and additional financing of the sector. Nonetheless the evidence tends to suggest that the policy is often associated with improved access for the poor – at least in the short term – but also that it needs to be accompanied with other measures if it is to protect the poor and ultimately improve their health outcomes (James et al., 2006).

We cannot simply assume that by reducing one type of cost that overall costs are reduced. The relationship between these costs is important. There is no guarantee, for example, that by introducing or abolishing official fees that unofficial fees or total costs to patients will decline though there is some evidence that this happens. Equally, in terms of abolishing user fees there can be no certainty that providers will not compensate by increasing informal fees (a particular concern of the World Bank). Lack of transparency often means patients cannot distinguish between unofficial and official fees and can act as a deterrent to seeking care a point made frequently by Department for International Development (DFID) advisers (Pearson, 2004).

Similarly, James et al., (2006) find out that improving access to the poor requires the dismantling of multiple barriers to access. User fee abolition, enacted in a handful of countries, focuses on removing one key cost barrier. The limited evidence available so far suggest that this policy has been most successful when supported by other measures that account for interaction with other barriers and its potential effect on provider incentives.

One of the more frequently cited examples of successful recent fee abolition comes from Uganda. In March 2001, president Museveni of Uganda announced the abolition of user fees for all health services, except those charged in private wings (Pearson, 2004). This was followed by significant increases in curative and some (but not all) preventive services during the early phase of the reform. Early evidence suggests that improvements in utilization were most marked for the poor, although the incidence of catastrophic expenditures amongst the poor did not fall. Interestingly, utilization also increased in the private sector, which reduced their charges soon after the policy change. There were also decreases in the average number of days lost to sickness, and fewer individuals were barred from accessing services due to their cost (James et al., 2006)

Other experiences come from South Africa, Madagascar and Kenya. In South Africa, fees were removed for pregnant and lactating women in 1994, and then extended to all people in all primary health centers in 1997. Utilization of curative services almost doubled, but there were slight falls in preventive services. In Madagascar, utilization doubled in 1997-1998 after introduction of user fees, but then decreased sharply in 2000 during a period of political turmoil. Subsequent elimination of fees was associated with a 21% increase in utilization. In Kenya, user fees were also removed temporarily in 1990, with a 41%

increase in utilization in government health centers (James et al., 2006). Karanja et al., (1995) also found a 52% increase in utilization of outpatient services in Kenya in government fee-charging facilities per month after the registration fees were removed. On the other hand utilization of mission and private clinic fell by 36% and the use of government dispensaries, which had not charged fees, remained the same.

A recent study explored the potential mortality impact of fee abolition, combining these experiences with evidence on the impact of key child survival interventions on child mortality. It is estimated that 153,000-305,000 (4.1%-8.2%) under-five deaths could be prevented annually across twenty sub-Saharan African countries if fees were abolished (James et al., 2005). It was argued that user fees hit hard the poor and the socially excluded segment of the population, particularly women, children and the elderly (Abay, et al., 2004, save the children, 2005a)

Pearson, (2004) argues that the case for removing official user fees for primary health services is strong. They raise little money and rarely meet their stated efficiency and equity goals. They are often associated with reduced utilization of services especially by the poor and vulnerable (resulting in greater reliance on often inappropriate forms of self treatment), a failure to complete treatment (resulting in problems of drug resistance) and delays in seeking treatment (resulting in worse health outcomes). Although, user fees rarely present the most important financial barrier they are the one most amenable to policy action. As the recent experience in Uganda shows that with sufficient political commitment the elimination of fees can play a catalytic effect in forcing government to confront other issues such as financial management problems and drug supply and procurement which

pose further barriers to progress. In some countries abolishing user fees is seen as the only viable exemption policy. Nonetheless they tend to be kept in place by powerful vested interests – e.g., by health workers whose rewords are directly affected by user fee revenue

Pearson emphasized that removing fees to be accompanied by a range of actions including increased and well directed funding (above and beyond the loss of fee revenue) if it is to lead to sustained improvements in access for the poor. It would require additional funding to allow quality to be maintained in the face of increased demand and to increase health worker pay to increase productivity as well as an effective communications strategy to make the case to those likely to be affected by the changes. If governments abolish fees and do absolutely nothing else (and ignore the caveats and requirements for complementary reforms) it is highly unlikely to lead to sustained improvements in the long term as experiences in Zimbabwe, South Africa and Kenya suggest. It could even make things worse.

2.5 The Current debate

In sub-Saharan Africa the debate over user fee policy has evolved through three phases. During the first phase, the debate was whether to introduce user charges. As more countries adopted the policy, the debate shifted from “whether” to “how to” introduce cost recovery programs. Now that the policy is almost universal in sub-Saharan Africa, the focus of the debate is shifting to procedures for revising the policy (Nii Ayite, 1997).

Many low and middle income countries continue to search for better ways of financing their health systems. Common to many of these systems, is that current financing methods

do not mobilize sufficient resources to provide the desired levels of health care for the whole population, too many of the available resources are not pooled to provide protection against households expenditure variance or channeled through some form of prepayment mechanisms, and the scarce resources that are mobilized often do not lead to value for money in terms of health care on which it is spent. The poor and other vulnerable groups who need health care the most are the most affected by these shortcomings especially the high reliance on user fees and other out of pocket expenditure on health which are both impoverishing and provide a financial barrier to needed care. It is with in this context, and in light of recent policy initiatives, that a debate on the role of user fees in health financing system has recently re-emerged (James, 2006)

Exemptions are a critical issue in the debate over user fees. If the poor can be exempted effectively, then many of the criticisms of user fees fall apart. The original dream of price discrimination – the rich pay for a service, thereby bringing in valuable revenue to improve quality, while the poor continue to have access via reduced or non-existent prices – could work, if exemptions worked. However, experience suggests that they do not work, on the whole. A review of 25 African countries operating user fees revealed that only 15 had exemption policies, and of these, only one (Zimbabwe) had a clearly specified income limit (the rest were unable to specify clear criteria, and even in Zimbabwe there were many problems implementing the policy) Gilson and Mills, (1995).

They argue that one problem area is targeting – means testing, for example, in an economy based largely on informal employment or subsistence farming, is difficult and unreliable. The design of exemptions systems therefore has to choose between using broad categories

(which increase 'leakage' of benefits thereby reducing efficiency) and strict ones (which increase 'under coverage', thereby reducing access and equity). This last situation is compounded by poor people's unwillingness to be stigmatized, which increases under-coverage, especially when the exemption categories are narrow and based on income.

Another common problem cited by Gilson (1997) is unwillingness on the part of providers to give exemptions. The more effective the user fees as a method of raising funds, the less willing providers tend to be to offer exemptions, as their income often depends on fees, directly or indirectly. For instance, in Ghana, where user fees contributed important sums (between two-thirds and four-fifths of non-salary operating costs), fewer than one in 1000 patients were granted exemptions (Nyonator and Kutzin, 1999), the authors of this study concluded that user fees create 'sustainable inequity'- allowing the system to function, but excluding the poor.

Based on the experience of the adverse effects of user fees on access for basic services in many countries, a number of organizations and initiatives have advocated for the removal of the fees, including EQINET (a southern African equity research and advocacy network), Save the Children – UK, the UN Millennium Project and the Commission for Africa. Development Agencies, such as DFID and UNICEF, are engaged in internal debate about whether they should adopt a blanket policy in favor of user fee abolition, with financial support to countries which remove fees. The WHO urges countries to move towards prepayment as a more equitable solution than over-reliance on out of pocket expenditures. Further WHO technical briefs emphasize the need for universal coverage while reinforcing prepayment, thereby avoiding catastrophic health expenditure in households. Several

World Bank Reports recommended that countries introduce various forms of insurance and prepayment mechanisms to protect vulnerable populations against the impoverishing effects of expenditure variance. The issue is also on the political agenda: in 2001, the US government required the US congress to oppose any World Bank, IMF or other multilateral development bank loan or grant which mandates user fees for basic health or education services as conditionality. In the UK, statements by leading cabinet members have urged patient charges to be removed. And at this year's G8 summit in Gleneagles, the leaders pledged to support countries wishing to eliminate user fees: "we support our African partners' commitment to ensure that by 2015 all children have access to and complete free and compulsory primary education or good quality, and have access to basic health care (James, et al., 2006)

In general, most surveys in lower-income countries typically report significant proportions of populations not seeking care even though they are sick, with a commonly cited reason being the financial cost of health care. More over high travel and other non-health care costs, especially for those living in rural areas, suggest that frivolous use is unlikely even without fees (Witter, 2005). Still fees might encourage more efficient use of the referral system if graded accordingly to the level of care, although there is little evidence to support this. Even if we accepted user fees at least for some types of curative health care, it would still be inefficient strategy since it ignores the uncertainty – both in timing and quantity required in future – which is associated with health care consumption (James et al., 2006).Table A-2-2 in appendix A provides the views different donors on user fees.

2.6 The Ethiopian Case

There are only a few numbers of studies on the impact of user fees in Ethiopia: one study is made by Russell and Abdella (2002) in East Hararghe. The research show that: most people do not go to a health worker when ill. Of those who did, two-thirds deepened their poverty by selling assets. Similarly, Abay et al. (2004) investigated the effect of user fees in health care choice behaviours in rural areas of Ethiopia. The overall results show that user fees have strong negative impact on the utilization of health care services.

The other studies are not typically for Ethiopia, they are studies in sub-Saharan Africa or in low income countries. For instance; Pearson (2004) indicated the current user fee regime of the country; that is, charges are in place for PHC and have been extended to cover previously exempt areas. He revealed that only vaccination is currently free. He also found user fees as a major constraint to access; moreover, he indicated that policy in the country is moving in the opposite direction to DFID blanket abolition policy.

In general, most studies in low income countries find that:

- User fees are not an effective means of raising revenue but can be important at the margin. They generally make very little money and do it inefficiently. User fees rarely account for more than 10% of recurrent costs; appendix A, table A-2-3 shows budgets covered by user fees in selected sub-Saharan Africa. In Ethiopia user fees covered only 9% of recurrent expenditure in health in 1996/7.

- User fees tend to worsen equity outcomes with little, if any, improvement in efficiency.

- There is little evidence that user fees have improved health service efficiency.
- User fees have generally proved to be inequitable having a particularly adverse effect on the poor.
- Exemption and waiver schemes have generally been ineffective in protecting the poor and vulnerable

Pearson (2004) concludes that, user fees are very much a second best solution. They have often been pursued for inappropriate reasons – to raise revenue (which they are not good at) rather than to improve quality (where they could make a difference). And he suggests best practice guidance, the Addis Ababa Principles, (annex 2) for countries who want to implement user fee progammes to reduce the harmful effects associated with user fees.

CHAPTER THREE
OVERVIEW OF THE ETHIOPIAN HEALTH SERVICE DELIVERY SYSTEM

3.1 Mandates of the Federal Ministry of Health

Proclamation No. 471/2005 of the Federal Democratic Republic of Ethiopia provides definition of Powers and Duties of the Executive Organs. The specific duties and responsibilities of the Ministry of Health are given in part 3, No. 22 of this proclamation, as follows:

1. Coordinate and direct the country's health sector development program;
2. Devise and follow up the implementation of strategies for preventing and eradicating communicable and non-communicable diseases;
3. Devise and follow up the implementation of strategies for preventing malnutrition and food contamination; certify and supervise the safety of food stuffs;
4. Undertake the necessary quarantine at the main entry and exit points of the country to safeguard public health;
5. Undertake appropriate measures in the events of disasters and other situations that threaten public health, and coordinate measures to be taken by other bodies;
6. Ensure the availability and proper utilization of essential drugs and medical equipment in the country;
7. Create condusive conditions for research, registration and utilization of traditional medicines; and give the necessary support to practitioners to register and practice their profession;
8. Establish and administer health research centers;

9. Set and supervise the enforcement of health service standards;
10. Determine the qualification requirement of professionals desiring to engage in public health service at various levels, and issue certificates of competence to them;
11. Ensure the carrying out of drug administration and control activities;
12. Delegate part of its powers to regional health bureaus and other government organs as deemed necessary.

Moreover, key institutions such as Drug Administration and control Authority, the Health Education Center and the Ethiopian Health and Nutrition Research Institute have specific mandate. These mandates are related to ensuring safety, efficacy, quality and proper use of drugs; improving the knowledge, attitude, behaviour and practice of the population on prevention and control of disease and health lifestyle; conducting researches and studies that will contribute to the improvement of the health of the population.

3.2 Mandates of the Regional Health Bureaus

The Health Bureau shall have the powers and duties to:

1. Prepare, on the basis of the health policy of the country, the health care plan and program for the people of the region, and to implement same when approved;
2. Ensure the observance in the region of laws, regulations and directives issued pertaining to public health;
3. Organize and administer hospitals, health centers, clinics, and research and training institutions to be established by the regional self-government;

4. Issues license to health centers, clinics, laboratories and pharmacies to be established by domestic organizations and investors; supervise to ensure that they maintain standard fixed at the national level;
5. Ensure that professionals engaged in public health services in the region satisfy the prescribed standards; and supervise same;
6. Cause the application, together with modern medicine, traditional medicines and treatment methods whose efficiency is ascertained;
7. Cause the provision of vaccinations, and take other measures, to prevent and eradicate communication disease;
8. Participate in quarantine control undertaken for the protection of public health;
9. Ascertain the nutritional value of foods.

3.3 Policy and institutional framework

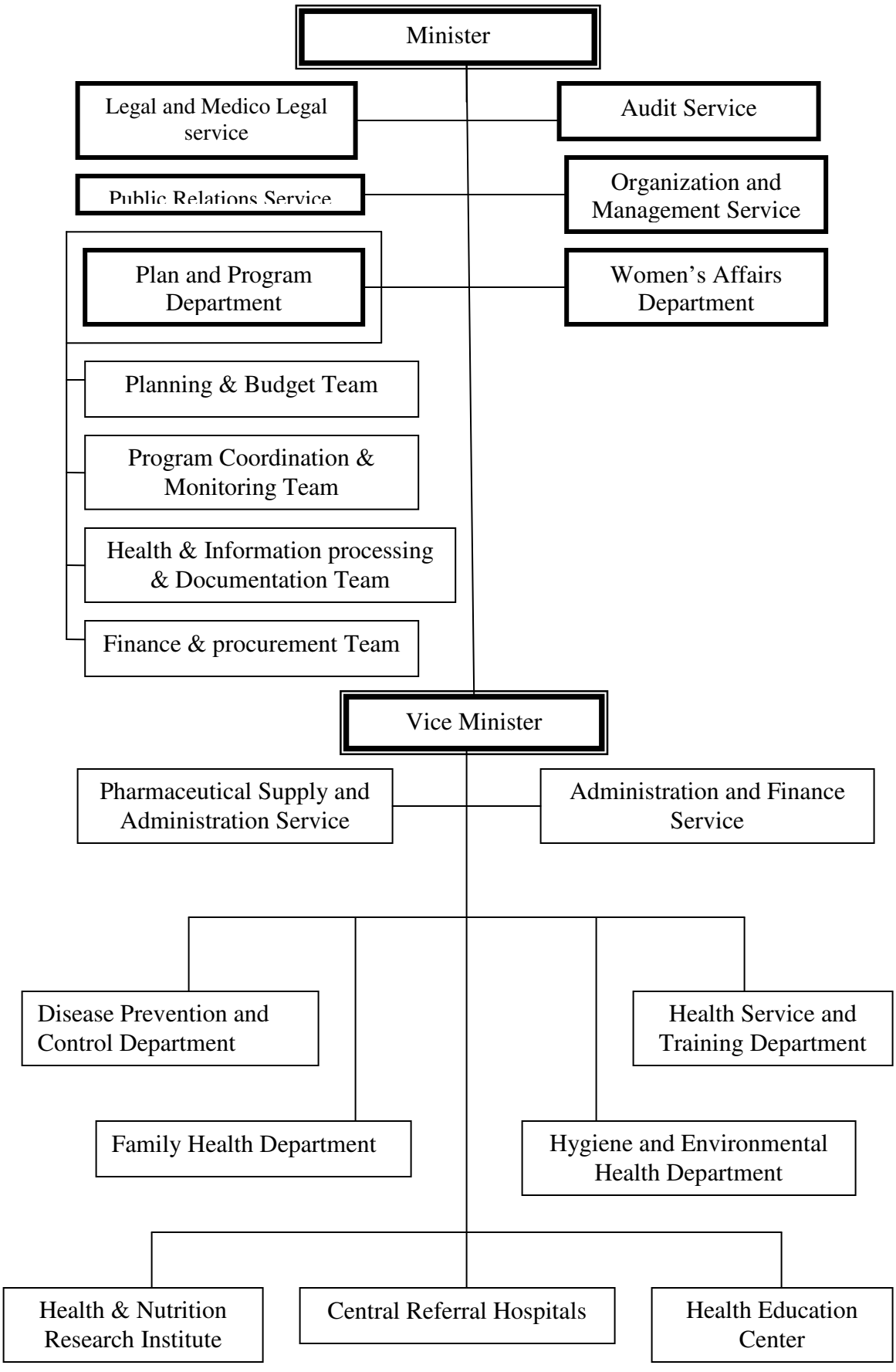
The National Health Policy of Ethiopia was approved by the Council of Ministers in September 1993. This policy is based on ten principles:

- Democratization and decentralization of the health system;
- Development of the preventive and promotive components of health care;
- Development of an equitable and acceptable standard of health service system that will reach all segments of the population within the limits of resources.
- Promoting and strengthening of intersectoral activities.
- Promotion of attitudes and practices conducive to the strengthening of national self-reliance in health development by mobilizing and maximally utilizing internal and external resources.
- Assurance of accessibility of health care for all segments of the population.

- Working closely with neighboring countries, regional and international organizations to share information and strengthen collaboration in all activities contributing to health development, including the control of factors detrimental to health.
- Development of appropriate capacity, based on assessed needs.
- Provision of health care for the population on a scheme of payment according to ability, with special assistance mechanism for those who cannot afford to pay.
- Promotion of the participation of the private sector and non-governmental organizations in health care.

The managerial set-up of Ethiopian health services has historically been centralized. A new Health Policy and Health Sector Strategy was adopted in the mid -1990s by the Government, which involves the move towards democratizing and decentralizing the health system and strengthening the regional, zonal and district/woreda health departments. The roles and responsibilities of the Federal Ministry of Health and Regional Health Bureaus (RHBs) are defined by the national and regional constitutions. The following figure shows the organizational structure of Ministry of Health.

Figure 3.1 The Organizational Structure of Ministry of Health


Minister
Legal and Medico Legal service
Audit Service
Public Relations Service
Organization and Management Service
Plan and Program Department
Women's Affairs Department
Planning & Budget Team
Program Coordination & Monitoring Team
Health & Information processing & Documentation Team
Finance & procurement Team
Vice Minister
Pharmaceutical Supply and Administration Service
Administration and Finance Service
Disease Prevention and Control Department
Health Service and Training Department
Family Health Department
Hygiene and Environmental Health Department
Health & Nutrition Research Institute
Central Referral Hospitals
Health Education Center

Public services are going through a deep decentralization process. Ethiopia has gone through two stages of decentralization; the first stage of which involves the decentralization of functions from the center to the regions. Since July 2002 public services have been undergoing a deeper decentralization process as the primary responsibility for service delivery and management of government services are further devolved to the woredas. The primary objectives of the political, administrative and economic decentralization policy are to increase local participation aimed at strengthening ownership in the planning and management of government services; to improve efficiency in resource allocation; and to improve accountability of government and public service to the population.

Under the new system, the woredas receive block grants and are responsible for setting priorities, delivering services, and determining budget allocations at the local level within the framework of broad national policies (MOH, 2005). The woreda council is responsible for the planning and implementation of all woreda development programs including health services. For example, the woreda is responsible for construction of health centers (HCs) and health posts (HPs) and for the procurement of drugs and equipment. However, in actual practice, this process is still evolving because woredas still depend on regional and central levels for a number of health system related services such as the recruitment and allocation health personnel and the procurement and distribution of supplies.

In the new organizational framework of the health sector, the FMOH's responsibilities comprise policy formulation, standard-setting, issuance of licenses and qualification of professionals, establishment of standards for research and training, and coordination of external loans and grants.

Government policy also envisages a greater role for the private sector in health service delivery and financing. The enhanced participation of the private sector will be encouraged (within an appropriate regulatory and monitoring framework) to ensure coordination of public and private sector activities.

According to the guidelines of the MOH, the RHBs have the responsibility for supervising, monitoring and evaluating the activities of all clinics. The supervision of the operation of private hospitals is the responsibility of the MOH.

One of the important policy measures recently taken by the MOH in 2002/03 was the development of the Health Services Extension Package (HSEP) initiative which seeks to provide health promotion and extension services to communities. The HSEP intends to provide communities with essential packages of services in the following four areas.

a. Hygiene and environmental sanitation: excreta disposal, solid and liquid waste disposal, water quality control food hygiene, proper housing, arthropod and rodent control, and personal hygiene;
b. Disease prevention and control: HIV/AIDS and other STD prevention and control, TB prevention and control, malaria prevention, and first aid;
c. Family health services: maternal and child health, family planning, immunization, adolescent reproductive health, and nutrition; and
d. Health education.

For poor country like Ethiopia, where only about 52 percent of the population has physical access to primary healthcare (PHC), and where unfavourable health staff-to-population ratios exist, the move toward complementing facility-based care with outreach services such as the HSEP is strategically important.

3.4 Policy and Program Reforms

3.4.1 The Health Sector Development Program (HSDP)

The overall goal of the HSDP is to improve the health status of Ethiopian people through providing a comprehensive package of preventive, promotive, rehabilitative and basic curative health services via a decentralized health system in collaboration with all stakeholders. The initial Health Sector Development Program (HSDP), which was drafted in 1993/94, was designed for a period of 20 years, with a rolling five-year program period; it had three main goals (World Bank, 2005):

1. build basic infrastructure;
2. provide standard facilities and supplies; and
3. Develop and deploy appropriate health personnel for realistic and equitable primary health delivery at the grassroots level.

The first phase, HSDP I, was implemented from 1997 to 2002. It sought to:

a. Increase access to health care from 40 percent to 50-55 percent;
b. Improve the technical quality of PHC services, including the restructuring of the pharmaceutical sector and expanding the supply and productivity of health personnel;

c. Develop an information, education, and communication plan to communicate PHC messages to isolated areas;
d. Improve health systems management at federal and regional levels;
e. Improve financial sustainability of the health sector; and
f. Promote greater private sector investment in the health sector.

Based on its stated objectives, the important priorities of HSDP I were to expand and rehabilitate the network of Primary Health Care Units (PHCU), and to upgrade and expand district hospitals facilities, and promote equity by improving accessibility of essential health services to the neglected rural population of the country (MOFED, 2002).

The measures taken so far have resulted, among others, in increasing immunization coverage rate from 20% to 42%, potential health coverage from 33% to 52%, MCH from 15% to 29%, CPR from 4% to 19%, reduction in the threat and loss of life from infectious diseases such as Malaria, Meningitis, Tuberculosis and Leprosy and avoidance of serious epidemic outbreaks. A concerted and multi-sectoral effort to combat the ravages of HIV/ AIDS pandemic is also underway and gaining momentum (MOH, 2005). However, despite these commendable achievements in tackling the multifaceted health problems of the country, there remain still a number of matters to be addressed.

The overall goal of HSDP II is similar to HSDP I and aims at improving the health status of the Ethiopian population. Important additions to the HSDP II are its re-focus on attacking poverty related diseases and the development and implementation of a “Health Extension Package” aimed at effective prevention and control of communicable diseases with active

community participation. HSDP II will be launched in EFY 1995, and its formulation takes stock of and aligns with the existing and new health and related policies and strategies for a concerted and mutually supportive national effort. One of the most important linkages in this effort is with PRSP strategy (MoFED, 2002).

The formulation of HSDP-III is a five –year program intended to be implemented from 2005/06 to 2009/10 (July 1997 EFY to June 2002 EFY). The main policy contexts that are considered during the design and implementation of HSDP-III are a commitment towards the achievement of MDGs by aligning HSDP III with the SDPRP; institutionalization of village health services through the implementation of Health Service Extension Programme (HSEP); the conjoint Accelerated Expansion of PHC services; implementation of Health Human Resource Development Strategy, Essential Health Service Package, Child Survival and the National Reproductive Health Strategies (MOH, 2005).

Other policies that have important bearing on the Health Sector Development are the National Drug Policy, National HIV/AIDS Policy, National Women's Policy and National Population Policy. Moreover, the ongoing political and administrative reforms and strategies such as Agricultural Development Led Industrialization (ADLI), Rural Development Policy and Strategy, Policy on Decentralization, Civil Service Reform Program (CSRP), and Capacity Building Program.

The ultimate goal of HSDP III is to improve the health status of the people through provision of adequate and optimum quality of promotive, preventive, basic curative and rehabilitative health services to all segments of the population (MOH, 2005). The following are the specific goals that contribute to the achievement of the ultimate goal:

1. to improve maternal health
2. to reduce child mortality
3. to combat HIV/AIDS

According to MOH (2005), the following are the National Policy contexts that will be taken into account during the planning and implementation of HSDP III

3.4.2. The Sustainable Development and Poverty Reduction Program

The overall objective of the Ethiopian Government led Sustainable Development and Poverty Reduction Program (SDPRP) is to reduce poverty by enhancing economic growth while maintaining macroeconomic stability. It is built on four pillars (World Bank, 2005):

1) Enhanced Rapid Economic Growth (including private and financial sector development, rural development, vulnerability and roads);
2) Improved Human Development (including education, health HIV/AIDS, water and sanitation);
3) Democratization and Governance (including decentralization, justice system reform, and urban management); and
4) Improved Public Sector Institutional Performance (including civil service reform, tax reform and ICT).

SDPRP is a national development program as well as the main poverty reduction strategy document. SDPRP is inclusive of all the MDG relevant sectors and most of the targets for the sector programs are inline with MDGs. HSDP is the main medium of translating the

health component of the SDPRP with minimum targets more or less similar with the MDGs.

In addition, the SDPRP identified key sectoral measures and cross-cutting issues to focus on including education, roads, water and sanitation, HIV/AIDS, health gender and development. In health, in particular, it seeks to improve the balance between preventive and curative healthcare trough a community-based healthcare delivery system aimed at creating a healthy environment and lifestyle.

3.4.3 Health Service Extension Program

One of the important policy measures recently taken by the MOH in 2002/03 was the development of the Health Services Extension Package (HSEP) initiative which seeks to provide health promotion and extension services to communities. It is introduced in HSDP II in recognition of the failure of essential services to reach the people at the grassroots (MOH, 2005). The HSEP intends to provide communities with essential packages of services in the following four areas:

e. Hygiene and environmental sanitation: excreta disposal, solid and liquid waste disposal, water quality control food hygiene, proper housing, arthropod and rodent control, and personal hygiene;
f. Disease prevention and control: HIV/AIDS and other STD prevention and control, TB prevention and control, malaria prevention, and first aid;
g. Family health services: maternal and child health, family planning, immunization, adolescent reproductive health, and nutrition; and
h. Health education.

For poor country like Ethiopia, where only about 52 percent of the population has physical access to primary healthcare (PHC), and where unfavourable health staff-to-population ratios exist, the move toward complementing facility-based care with outreach services such as the HSEP is strategically important.

3.4.4 Accelerated Expansion of Primary Health Care Coverage

It proposes a faster rate of establishment of primary health care facilities, as an essential institutional framework to scale up PHC and for the successful implementation of HSEP. Therefore, new health posts will be constructed and equipped in order to support the provision of preventive and promotive health service to rural populations through the HSEP. Besides, construction and equipping of new health centers and upgrading of health stations to health centers will be undertaken (MoFED, 2005).

3.4.5 Essential Health Service Package

The objectives of EHSP are:

- To enhance the effectiveness of the health sector program. The development of an EHSP will help improve effectiveness of the health sector program and its management by increasing attention towards health service output.
- To promote standardization of essential services. The EHSP enhances availability and delivery of equitable services for each district by defining the minimum standard for each level of care. The access to this package by pastoralists and scattered communities will also be specifically handled. These help ensure equitable access to essential health services.

- To serve as a management tool. The EHSP will serve as basis for planning and management of health services, to guide resources allocation by the districts as well as for monitoring and evaluation of the performance of the health facilities.

The major components of the EHSP for Ethiopia are classified building on HSEP. The HSEP is taken as an essential package at the community level. A category containing basic curative care and treatment of major chronic conditions is introduced starting from the Health Center level. This, the EHSP is organized into the following five components:

1. Family Health Services
2. Communicable Disease Prevention and Control Services
3. Hygiene and Environmental Health Services
4. Health Education and Communication Services
5. Basic Curative Care and Treatment of Major Chronic Conditions

3.4.6 National Strategy for Child Survival

The National Child Survival Strategy has the overall objective of reducing under-five mortality to 67/1000 population by 2010 to achieve the MDGs. The strategy addresses the major causes of child mortality that account for 90% of under-five deaths. i.e. pneumonia, neonatal conditions, malaria, diarrhea, measles, malnutrition and HIV/AIDS as underlying condition. The strategy also contributes to the reduction of maternal mortality by 36% through ensuring the availability of good quality essential health care for women at the health facilities as well as in the community through integration with the HSEP.

3.4.7. The Health Human Resource Development Strategy

This strategy has looked into the diverse human resource problems in the sector and particularly to the absolute shortage, mal-distribution and low productivity of the workforce.

The strategy was designed based on the fundamental principles of the national human resource development strategy (MOH, 2005); that is

1. rapidly scaling up of manpower development at all levels inline with the anticipated needs of a rapidly growing economy and the ultimate goal of poverty reduction.
2. prioritizing on the primary and mid-level training while taking into account future demands for higher professionals.
3. ensuring the quality of training so as to make it of acceptable professional standards.

Different options were explored to address the above-mentioned key issues in the strategy. Moreover, the strategy has looked into the chronic problem of human resource management and deployment. This strategy, that is part of HSDP III, will be implemented through collaborative effort of Ministry of Health and Ministry of Education.

3.5 Organization of the Health Services Delivery

The role of Ministry of Health is declined in such a way that regional health bureau have autonomous power on planning, budgeting and supervision of the health facilities exist in their region. Healthcare services are provided through four sectors: public sector, private sector, NGO sector and traditional healers.

The Public Sector

In the mid 1990s, prior to the implementation of HSDP, the public health system was structured into a six-tier system (World Bank, 2005):

- Central referral hospitals (covering approximately 588,000 persons)
- Regional hospitals (N/A)
- Rural hospitals (N/A)
- Health centers (covering approximately 223,000 persons)
- Health stations (covering approximately 45,000 persons)
- Community health posts (covering approximately 21,000 persons)

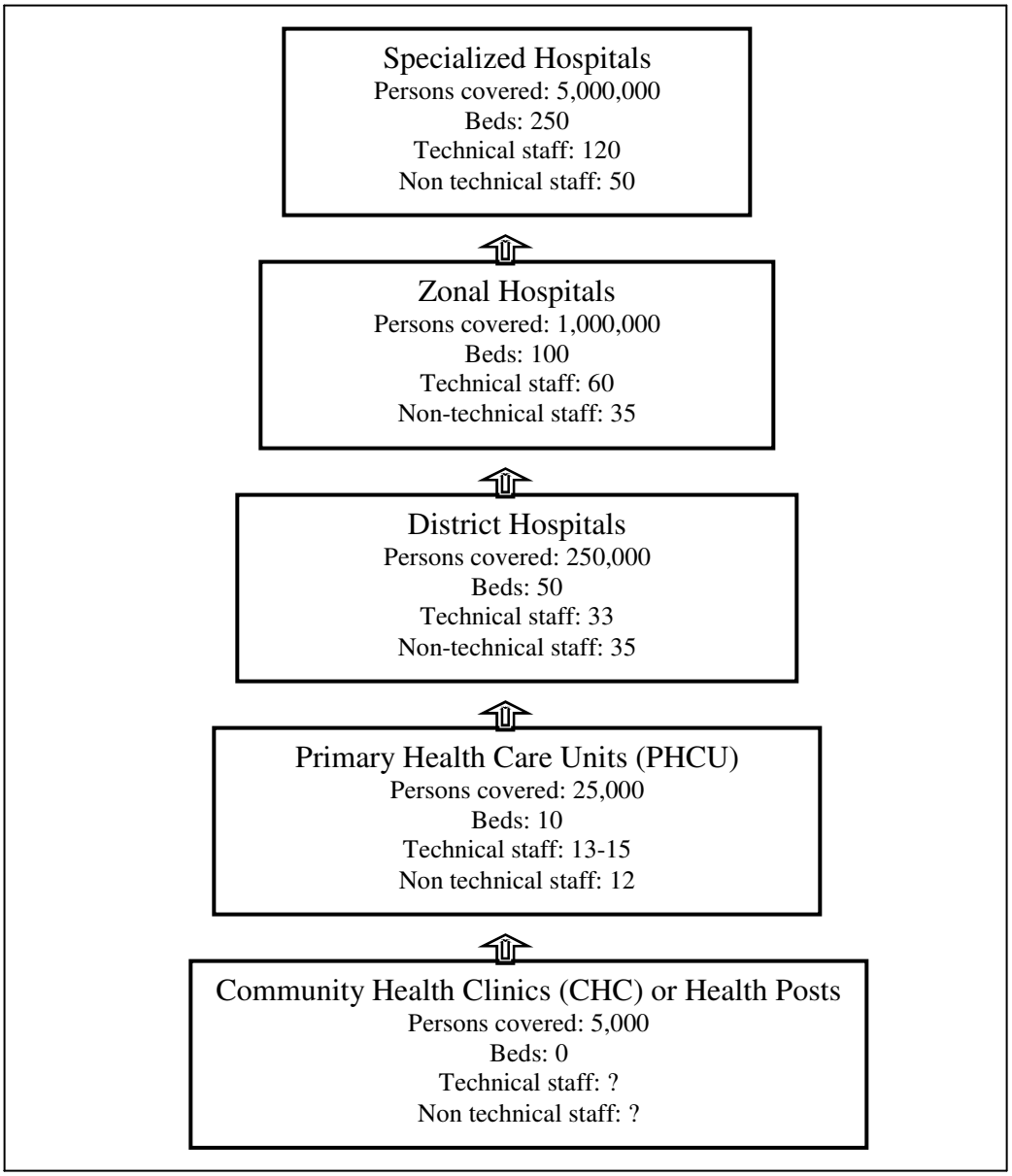
A change in the service delivery structure to a simpler four-tier system was planned during HSDP I. The main change was to replace health stations (HSs) (popularly known as clinics) with primary health care units (PHCUs). Each PHCU would have a health center surrounded by ideally five satellite community health clinics (CHC) or health posts, each serving a population of 5,000. Thus each PHCU would serve a total of 25,000 people. The PHCU is expected to provide comprehensive, integrated and community-based preventive and basic curative service, in particular:

- Maternal and child health care, including immunization, family planning advice and services, nutritional health, and micronutrient supplementation;
- Curative services for common ailments such as parasitic infections, diarrhea, acute respiratory infections and tuberculosis;

- Minor surgery and life-saving operations such as appendectomies and caesarean sections;
- Technical assistance in establishing and monitoring environmental and occupational health standards with in its catchments areas;
- Record-keeping of basic vital statistics and disease surveillance;
- Training of CHAs and traditional birth attendants (TBAs) who will staff the CHCs or HPs.

Each district hospital functions as a referral and training center for ten PHCUs. Zonal hospital (ZHs) provide specialist services and training while specialized hospitals (SHs) provide comprehensive specialist services, and in some instance serve as centers for research and post basic training.

Figure 3.2. Structure of the public health delivery system.



The government runs a majority of the formal health facilities. 71% of hospitals, 94% of HCs and all of the HPs are run by the government. On the other hand the pharmaceutical sector is dominated by the private sector: 85% of pharmacies, 81%of drug shops and all rural drug vendors are privately owned. The regional distribution of facilities is uneven: urban areas are better covered than rural areas (World Bank, 2005).

Private Sector

The private sector has expanded but no coherent implementation strategy and guidelines exist to enhance its participation in meeting health sector objectives. Before 1995, private sector involvement in the health sector was negligible because there was no legal framework within which private practices were allowed to operate. Since then, a number of private for profit clinics and pharmaceuticals manufacturing firms have opened across the country, mostly in urban areas. The current role and impact of the private sector in Ethiopia is not addressed sufficiently in recent literature. This is worth noting because the HSDP strategy calls for expanded private involvement and the development of innovative strategies and partnerships to leverage the private sector towards public health ends.

Private providers are concentrated in the urban areas. In Addis Ababa, in particular, it appears that significant portions of health needs are met by the private sector. The pharmaceutical sector is dominated by the private sector. The regional distribution of these facilities is uneven with better coverage in urban areas. In 2002, 74% of private higher clinic and 93% private special clinics were concentrated in Addis Ababa (MOH, 2001)

The NGO Sector

As of December 2002, 508 NGOs were registered with Center for Disaster Preparedness and Prevention (DPPC): 377 indigenous and 131 international NGOs (World Bank, 2005). Legal procedures and guidelines exist for NGO licensing, operation, and follow-up during implementation. However, actual processes are more extensive and vary across regions. As a result, project formulation, appraisal and final agreement take time because of the way NGO licensing and legal procedures are organized; lack of coordination between various

stakeholders; procedural differences across regions; human resource constraints; and bureaucratic red tape.

Traditional Healers

The traditional medicine (TM) includes the use of herbs, the belief in the healing powers possessed by healers, Holy Water and other remedies for addressing both physical and mental illness.

TM plays an important role in health care for a large majority of the population. It appears that it is fairly common for people to seek TM first and modern medicine (MM) only when TM fails. In cases where TM was sought first and the patient's health did not improve, patients were delayed in reaching a health facility- sometimes to the point that it was too late. Some HWs expressed frustration with this practice, as it often resulted in the HWs being blamed.

There is ongoing discussion at the MOH about how to better integrate TM into the health care delivery system. The task force has been established to develop policy and guidelines.

Number and Distribution of Health Facilities: there has been a steady increase in the number of health facilities provided nationally with an emphasis on the establishment of Health Posts and Health Centers. From 1996/97 to 2002/03, the number of hospitals increases by 36.7 percent (from 87 to 119), Health Centers have increased by 75.4 percent (from 257 to 412 to451), and health posts from 0 to 1432. However, it is interesting to note that health stations, which are supposed to be phased out, only marginally decreased by two

percent fro m1996/97 to 2002/03 (from 2451 to 2396) with some regions even increasing the number of their Health Staions.

From 1996/97 to 2002/03, the number of private clinics increased by 127 percent (from 541 to 1229), pharmacies by 53.3 percent (from 197 to 302), drug shops by 101.3 percent (from 148 to 299), and rural drug vendors by 29.3 percent (from 1460 to 1888).

3.6 Major Health Problems

The health status of the people of Ethiopia is poor in relation to even low-income countries, including those in sub-Saharan Africa. The population suffers from potentially preventable diseases such as HIV/AIDS, malaria, tuberculosis, intestinal parasites, acute respiratory infections and diarrhoeal diseases. Health indicators are generally poor (WHO, 2005). Health sector reviews indicate that patients suffering from HIV-related problems may occupy more than 50% of hospital beds at any given time. Other conditions for admission include tuberculosis, malaria, respiratory infections, trauma, pregnancy-related conditions and complications of measles. The following are indicated as major health problem in the country by WHO (2005).

Maternal Mortality: Ethiopia has a maternal mortality ratio (MMR) ranging from 560 to 850 per 100,000 populations. The identified causes of maternal mortality are mechanic dystocia, eclampsia (high blood pressure during pregnancy), bleeding and sepsis following abortion or delivery. The death of a mother is not only a loss of a human life but also something that negatively impacts the child's survival and development.

HIV/AIDS/STI: According to MOH estimates, the HIV/AIDS prevalence rate among adults has been increasing steadily from 2.7% in 1989 to 7.3% in 2000. According to the

3rd edition of the MOH document called "AIDS cases in Ethiopia", there might have been about 2.6 million people infected with HIV/AIDS and about 400,000 actual AIDS cases in Ethiopia at the end of 2000 was 83,487. According to the Ethiopian DHS-2000, 3% of all men had experienced symptoms of sexually transmitted infections (STD) a week before the survey. This is indicative of the high prevalence of unprotected sexual activity predisposing many people to HIV infection. The rapid spread of the HIV infection poses a special challenge to the health and other sectors of the country. The Voluntary Counseling and Testing (VCT) sites in the country are not sufficient and are not easily accessible to the population.

Tuberculosis: in 2001, about 93,000 new cases of tuberculosis were reported, with a death rate of 7% among sputum smear-positive cases. With the advent of HIV/AIDS, the prevalence of TB has been increasing. The management of TB poses a special challenge to the health sector. Directly-observed treatment short-course for TB (DOTS) was introduced, but it has still to cover the whole country, as only about 50% of the population is with in walking distance from health facilities.

Malaria: the incidence of malaria has been increasing steadily over the years. In 1995, there were 1.1 million cases while the caseload increased to 1.5 million in 2001. Positives actions taken by the government include community-based malarial control, epidemic control and the introduction of mosquito nets. There have been occasional shortages of anti-malaria drugs and this problem need to be addressed in the future.

Vaccine-preventable diseases: the average national DPT3 coverage is 42%. The national immunization days (NIDs) have achieved high oral polio vaccine (OPV) coverage

in children less than five years of age. The number of children under 5 years of age vaccinated during NIDs increased from 294,000 in 1996 to 14.1 million in 2001.

Non communicable diseases: the prevalence of non communicable diseases, including hypertension, cardiovascular diseases and diabetes mellitus, is increasing with changes in people's lifestyles. According to the Health and health-related indicators of MOH (2000-2001), hypertension was the seventh leading cause of death in the country in 2001.

Blindness: According to the National Plan for Eye Care in Ethiopia (MOH, 2001), the estimated prevalence rate of blindness is 1.25%. With appropriate public health measures, two-thirds of these cases could be prevented. They could be due to trachoma, vitamin A deficiency and cataract. According to the Health and health-related indicator of MOH (2000-2001), cataracts were responsible for 204% of all admissions to hospitals in 2001.

Mental health: Mental illness is one of the health issues that have not received the attention it deserves. Health workers do recognize that mental illness is on increase and the government and partners recently commissioned an assessment of the situation. The result, which is believed to serve as background information of strategies for addressing mental health, is being awaited.

Reproductive and adolescent health: the problem of high maternal mortality, high teenage pregnancy, low contraceptive prevalence rate and a relatively high incidence rate of STI in young people calls for improvement in the provision of preventive, promotive and curative reproductive health services

3.7 Determinants of Ill-Health

Living conditions: It was estimated that about 45% of the people in Ethiopia live on less than one US dollar per day in 2001.

Literacy rate: the adult literacy rate is 36% (46% for males and 25% for females). The primary school enrolment rate is 57.4% for both sexes, out of which girls constitute 45%.

Access to safe drinking water: Only 33% of the population had access to safe drinking water in 1999. The coverage in urban areas is 80% and in rural areas it is 14.3%.

Sanitation facilities: Sanitation coverage is estimated at 25%. According to MOH (HSDP II), 74% of urban-dwellers have access to reasonable sanitation facilities.

Health care performance: the health system provides health care for 52% of the population. Most of the rural population has limited access to modern health-care services. In terms of service delivery, it is estimated that only 75% of urban households and about 42% of rural-dwellers have access to health facilities. There are seasonal shortages of medicines and medical supplies. Like in many other African countries, the main causes for the shortage of medicines and an inefficient distribution system. The issue of health-care services delivery to the pastoral communities, who account for 10% of the population, calls for special attention.

Agricultural productivity and food safety: Low agricultural productivity and recurring drought are responsible for nutritional deficiencies. According to DHS (2000), 51.5% of children below the age of five were stunted while 10.5% were wasted and 42.7% were underweight. The same survey found out that 3.6% of the women were stunted and 30.1% were undernourished. Micronutrient deficiencies, in particular vitamin "A" deficiency and iodine deficiency disorders are also widespread.

Unemployment/ underemployment/ migration: According to the report of the Central Statistics Authority in 1999, 8% of all people aged 15 years and above were unemployed. This means that most the rural population in this age category is employed, but they produce enough for the subsistence of the family only. Thus, no surplus is available to earn income for improvement of the economic well-being of the population. Of the total population of the country, 19.6% are migrants. The reasons for population movement (migration) are search for work, marriage arrangements and return home or going back to place of origin, and search for grazing area. Pastoralists constitute about 10% of the population. It was found that females were more likely to migrate than males.

Status of women: violence against women is still prevalent in the country and harmful traditional practices (female genital mutilation, abduction, early marriage, etc) are common. These have negative consequences on the health of women. Therefore, mainstream gender issues in all aspects of development, including health, are important.

3.8 Challenges and Prospects in the Health System

Access and equity: in order to address the issue of access and equity, the government has developed HSDP I followed by HSDP II. Development of an appropriate health care package to meet the priority needs of the people as well as to upgrade the current health delivery system to ensure access to a modern health is under way. The efforts of the government in this direction need to be supported.

According to World Bank (2005) approximately 51 percent of the population has access to clinical services (provided by HSs and HCs). Coverage increases to about 61 percent when

HPs are included in the coverage calculation and to 70.2 percent if private clinics are included. In terms of service delivery, it is estimated that only 75 percent of urban households and about 42 percent of rural households are with in ten kilometers of a health facility.

Table 3.1. Potential Health Service Coverage and Visit Per Capita, 2002/03

Region	Population	Facility Type in Number				Access to health facilities with in 10 kms (Potential Health Service Coverage, %)		
		HC	HS	HP	PC	HC, HS	HC, HS, HP	HC, HS, HP, PC
Tigray	4,006,008	35	183	121	28	67.5	82.6	86.1
Afar	1,301,001	8	45	56	2	49.9	71.5	72.2
Amhara	17,669,006	81	508	410	178	40.2	51.8	56.8
Oromia	24,395,000	141	903	326	482	51.4	58.2	68.0
Somali	4,002,000	20	114	54	2	40.9	47.7	47.7
Ben-Gumuz	580,000	7	75	44	4	159.5	197.4	200.9
SNNPR	13,686,002	118	371	306	154	48.6	59.8	65.5
Gambella	228,002	8	18	42	7	166.6	258.8	274.1
Harari	178,000	2	19	7	18	134.8	154.5	205.1
Addis Ababa	2,725,002	28	148	46	339	80.0	88.4	150.6
Dire Dawa	357,000	3	12	20	15	54.6	82.6	103.6
National	**69,127,021**	**451**	**2396**	**1435**	**1229**	**50.9**	**61.3**	**70.2**

Source: A Country Status Report on Health and Poverty, the World Bank Group (2005)

Distances, travel time and availability of public transportation are very important factors in determining access to health facilities for the poor.

Despite the increase in the number of facilities, geographical access to health services in Ethiopia remains one of the lowest in the world. According to table 3.1 geographical access has slightly improved over five years with the average distance to the nearest health facility providing curative care (hospitals/health centers/ health clinics) decreasing from 8.8 kms in 1995, to 7.7 kms in 2000. Large rural to urban differentials exist as the nearest health facility providing curative care is 1.4 kms always in urban areas and 8.8 kms away in rural

area in 2000. Regional differentials are also significant: distances are as low as 1.3 kms in Addis Ababa and as far as 9.8 kms in Afar. The average distance for the poorest quartile of households is 8.8 kms as opposed to 6.1 kms for the richest quartile. Table 3.2 charts access to the nearest hospital/ health center/ health clinic by income quartile. Around 30 percent of households live beyond ten kms of the nearest hospital/ health center/ health clinic, this figure does not differ much across income quartiles.

Table 3.2 Average distances to hospitals/ health centers/ health clinics (kms)

	1995		2000	
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**
Urban rural				
Rural	10.2	9.3	8.8	8.2
Urban	0.9	2.3	1.4	3.4
Income Quartile				
Poorest	10.0	10.0	8.5	9.5
2nd Poorest	10.1	10.2	8.1	8.0
Middle	9.2	9.4	7.6	7.5
2nd richest	8.7	8.8	7.5	7.6
Richest	7.0	8.0	6.1	7.4

Source: WMS, 1995 and 2000

Quartiles	<1 Kms	1-4 Kms	5-9 Kms	10-14 Kms	15-19 Kms	20+ Kms
Poorest	6	29	32	17	9	6
2nd Poorest	8	30	33	16	8	6
Middle	8	29	32	15	9	6
2nd Richest	9	31	32	15	9	4
Richest	15	34	26	13	8	4
Total	9	31	31	15	9	5

Source: WMS, 2000

World Bank (2005) defines potential coverage within the Ethiopian context as having access to health facilities that are ten kms away. While this definition may not pose problems with regard to accessing preventive services, the international standard for access to clinical/curative services is a distance of five kms. Adhering to the international standard

is particularly important in Ethiopia because the WMS (2000) indicates that most health service users (90 percent) travel on foot to get to the nearest hospital/health center/health clinic. Traveling a long distance by foot poses major difficulties for those too ill to walk and for parents carrying their sick children. The general condition of roads in Ethiopia is also poor, making travel to these facilities more difficult.

Access to curative health services decreases further when the five kms standard is implemented, especially in the case of rural households. Only about 40 percent of all households have access to curative care that is less than five kms away. Only about 30 percent of rural households, compared with 94.2 percent of urban households, live less than five kms from facilities that provide curative care.

Infrastructure: the government and partners are committed to expand and rehabilitate the physical infrastructure in order to provide adequate health care coverage for the people. A programme to rehabilitate and construct the physical infrastructure in phases needs to be developed and implemented over the period of the WHO/CCS.

Finance: the budget allocation for the health sector has increased over the past three years. Resources for health from all sources are under-utilized due to gaps and delays in financial disbursement and reporting. The government and partners need to increase the budget allocation to the health sector in accordance with its expected expansion. They need also to advocate for more resources from donors. Financial reporting for different donors

needs to be harmonized to facilitate fast and smooth flow of funds. Table 3.3 below shows trends in health expenditure for the country.

Table 3.3 Health Financing

Expenditure on health (EH)	**1997**	**1998**	**1999**	**2000**	**2001**
Total Expenditure on Health as % of GDP	3.4	3.6	3.5	3.2	3.6
General government expenditure (GGE) as % of total Expenditure on Health	38	39	38	35	41
General government Expenditure on Health as % of total government expenditure	5.8	5.9	4.3	3.2	4.9
External resources for health as % of total expenditure on health	9.3	23.5	27.6	29.6	34.3
Out-of-Pocket expenditure as % of private expenditure of health	86	86	85	85	85
Per capita total expenditure on health at average exchange rate (US$)	4	4	3	3	3
Per capita government expenditure on health at average exchange rate (US$)	1	1	1	1	1

Source: DFID Health Systems Resource Center, Pearson (2004)

Referral: there is no national guideline on referrals. The ambulance system to support the referral system also seems not to be fully functional. Therefore, there is a need to formulate national guidelines for patient referrals and to improve the ambulance system. The development of the referral system is critical to make pregnancy safer.

Human resource: the progammes of health training institutes need to be continuously monitored, reviewed and improved to better respond to government policies and the country's current reality. There is a substantial need to the training institutes to produce

more midwives and nurses. An in-depth study on the long-term need of health professionals in the regions should be commissioned.

According to World Bank (2005) Ethiopia faces serious human resource constraints in the health sector. For example, even when health officers (HOs) are included in the estimates, the physicians-to-population ratio in Ethiopia is only 1:25958. Ethiopia has only about 0.04 physicians per 1,000 people compared to the SSA average of 0.1 per 1,000 people. It has the lowest physician-per-1000-persons ratio in the world.

Health information management system: it is difficult to determine the reliability of the health information management system given the problems so far observed in reporting. There is a need to develop a reliable health management information system for the country to generate information for monitoring the implantation of health programmes.

Medicines: the government has recently revised the list of essential medicines required by the various tiers of the health systems. In order to make essential medicines available in many places at all times, the procurement and distribution system needs to be improved.

3.9 Health System Financing (MOH, 1998)

The health sector is financed through a variety of sources in Ethiopia. These include

a) general government revenue,

b) donor aid/external assistance and foreign loans,

c) user fees (for services and drugs),

d) various types of health insurance, and

e) community contributions.

A comparison of the sources of funding between 1986 and 1996 is presented in the table 3.3.

Government financing: as table 3.3 shows there is an increase in government financing from 23 to 43. The increased share of government financing is the result of a sustained effort to increase the share of health sector expenditure in the total national budget:

- Between 1989 and 1996, health expenditure rose from 2.8 percent to 6.2 percent of the total budget.
- Between 1991 and 1996, the government health budget has increased from about 1 percent to GDP to about 2.7 percent of GDP.

During this period, the real value of the health budget increased by 35 percent, in spite of an overall decline in real GDP of about 12 percent. Despite this effort, in 1996 per capita health expenditure was about US $ 1.2, which is significantly lower than the sub Saharan African average health expenditure of US $ 10 per capita.

Since 1992 there have been several major changes in the structure of the government budget to the health sector. First, the proportion of salaries in the recurrent budget has declined to 53 percent in 1996 as a large share of the recent increases in health spending has gone to drugs and other non-salary items. Second, there has been a reallocation of

resources away from facilities in Addis Ababa (to just over 27 percent of the 1993 recurrent budget) and to primary care facilities. Since 1994, capital expenditure on health centers and health stations has risen from 17 to 40 percent of the capital budget. Third, support for public health services has increased with (in 1994) more than half (52 percent) of total regional recurrent expenditures focused on PHC- related services.

Fourth, control over health expenditure has shifted to regions which have since 1994 controlled between 83 percent of the recurrent budget and 95 percent of the capital budget. There is also a wide variation in the per capita health budget allocated by the regional governments.

On balance, allocated budgets have not been fully utilized; during the period 1990/91 to 1993/94, the utilization rate varied between a low of 77.2 percent (1990/91) and 96.3 percent (1993/94). Capital expenditure utilization rates tend to vary more than recurrent expenditure utilization rates, with a low of 59.3 percent in 1991/92 and a high of 101.6 percent in 1993/94. based on 1994/95 actual expenditure, 55.9 percent were for salaries, 19.3 percent for drugs and supplies, and 24.8 percent for other operating costs; these proportions vary by region.

Individual private payments: studies confirmed that households in Ethiopia make substantial direct payments to private practitioners, traditional healers, private pharmacies and others in the health sectors. Households also make payments to government facilities in the form of user charges, which have been collected by MOH since 1950. Since the

introduction of the fees, major changes and/or revisions have occasionally been attempted, but unsuccessfully.

The table shows that fees collected from paying patients could potentially amount to Birr 80 million in 1995/96; which is four times greater than the amount anticipated by the budget of MOH (birr 20 million); sated differently, 22.1 percent of the allocated recurrent health budget could potentially be recovered rather than the 5.5 percent estimated by the ministry of finance. Compared with the cost recovery capacity of facilities run by NGOs, the proportion of costs recovered appears insignificant since a sample of 31 NGO run facilities indicates that all recover at least 70 percent of their costs. Nevertheless, the revised estimate of the rate of cost recovery should result in increased budget allocations for the health sector.

Other: as the table indicates external assistance and loans have increased four fold in absolute terms over the past decade, the y constitute 17.3 percent of expenditures in the health sector and 40.3 percent of capital expenditure (down from 86.6 percent a decade ago). In addition to the benefits to the health sector, foreign assistance and loans are important sources of foreign exchange sector financing from health insurance and from NGOs is currently limited but has the potential to contribute significantly in the future.

Table 3.4 Financing the health sector in Ethiopia.

Kind of Payments	**1986 (in millions Birr)**				**1996 (in millions Birr)**			
	recurrent	**capital**	**total**	**Share of total exp.**	**recurrent**	**capital**	**total**	**Share of total exp.**
Individual Private Payments	226.5	0.0	226.5	63.4	388.4	0.0	388.4	39.3
Fees paid to MOH facilities	19.0	0.0	19.0	5.3	79.7	0.0	79.7	8.1
Fees paid to other facilities	207.5	0.0	207.5	58.1	308.7	0.0	308.7	31.2
Government of Ethiopia	79.0	3.4	82.4	23.1	281.7	142.0	423.7	42.9
External assistance	20.0	22.0	42.0	11.8	75.2	95.9	171.1	17.3
Health insurance	0.6	0.0	0.6	0.2	5.0	0.0	5.0	0.5
Other local sources	5.7	0.0	5.7	1.6	-	-	-	-
Total	331.8	25.4	357.2	100	750.3	273.9	988.2	100.0
Total health as share of GOE			12.6				10.2	
Total health as share of GDP			**3.2**				**2.7**	

Source: Program Action Plan for the Health Sector Development Program, MOH, 1998

3.10 FDRE's Health Financing Strategy

In 1998, the Government approved the Ministry of Health's health care and financing strategy. The strategy has the following goals:

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

The key guiding principles underlying the health policy and the goals set out above can be classified into five general categories:

- The role and determination of user charges in government facilities:
    - To be revised according to the ability of the people to pay and adjusted for the cost of living;
    - To be graduated depending on the level of the service provider and the amount of service provided (interventions outside the minimum benefit package left to the realm of private providers);
    - To include "by-pass" charges for self-referred patients;
    - To be adjusted to reflect the need of the government to subsidize some kinds of services more than others.
- The definition and use of "health facility revenue" accruing from the collection of such charges:

- Includes all income generated by health facilities from various income-generating activities;
- Is retained and used by the health facility that generates it;
- Is additional to government budget allocations;
- Is used to improve the quality and quality of health services;
- Is deposited in a special account opened by the respective health facilities;
- Is subjected for appropriate control and audit by authorized government bodies as per the new financial regulations.

- The relative roles of the government and local communities in ensuring that the financing strategy balances the need for revenue with the need to target services to high-risk populations, to the poor and to those services and diseases most needed by the people:
  - Active involvement of the communities will be a fundamental feature of the strategy;
  - Government has primary responsibility to make public health services available as near to the people as possible as a reasonable or no cost to them;
  - Services will be delivered based on cost-sharing principles between the provider (government) and the receiver (client).
- The uses to which retained fee revenues will be put:
  - Are to be focused on improving the quality of care at the collecting facility;
  - Are to be decided in accordance with guidelines to be developed by RHBs;

- Are to be responsive to the expressed needs and wishes of the local communities.

- Any waiver of fees shall be granted:
  - For patients diagnosed as having certain communicable diseases as determined by the MOH;
  - For particular preventive, promotive, and public health services, the consumption of which is to be encouraged and as determined by the MOH;
  - For patients whose household income is below the poverty level as determined by the appropriate government agency and certified by local administrators.

CHAPTER FOUR
MODEL SPECIFICATION AND METHODOLOGY

4.1 Theoretical Framework

According to Abay (2004) the modern health care demand analysis is based on the neoclassical paradigm of the rational consumer and constrained utility maximization theories. And it is represented by random utility model (RUM). The framework for this is a static model in which utility depends on health and consumption of goods other than medical care (Gertler et al. 1987). In the event of illness, individuals are assumed to decide to seek medical care or not, and from which provider; the benefit from consuming medical care is an improvement in health, and the cost of medical care is a reduction in the consumption of other goods.

Dow (1999) argued that utility (U) conditional on choice (*j*) is specified as an additively separable, linear function of health (H) and non health consumption (X). Each individual *i* chooses alternative *j* from the set *J* in discrete health care demand choices so as to maximize conditional utility: choose $j \in J$ such that $U_j \geq U_k$ for all *k*. The individual maximizes the utility function given below subject to two constraints: the budget constraint and the health production function.

$$U_{ij} = \left(X_i, H_{ij}\right) \text{---------- (1)}$$

Where:

U_{ij} is the utility of individual *i* gained from provider *j*;

X_{ij} is the consumption of non health goods;

H_{ij} is the expected health status after receiving treatment.

The health production function is given by:

$$H_{ij} = (C_i; S_i, M, E, Z) \text{ ---------- (2)}$$

Where;

C is the quantity and quality of health care chosen;

S_i is the set of individual attributes such as age, gender, education, income, wage rate and health status;

M consists of household characteristics such as wealth, number of members in the household;

E is the set of community characteristics like availability of hospital and the distance to the hospital;

Z is alternative specific attributes; such as waiting time and user fees

C is endogenous inputs to health care; while S, M, and E are exogenous variables influencing health.

Thus budget constraint is:

$$Y_i = P_c C + P_X X_i \text{ ---------- (3)}$$

Where:

Y_i is the household income,

P_c is the price of health care, and

P_X is the price of non health goods and it is normalized to be one.

The price of health care (P_c) is comprised of the user fees (*UF*) and access costs such as travel and waiting time (*T*) to the facility.

$$P_c = UF + wT_{ij} \text{ ---------- (4)}$$

Where:

UF is user fees which include examination, drug, laboratory etc;

w is the wage rate;

T_{ij} is travel and waiting time;

Thus, wT_{ij}, is the opportunity cost of care seeking.

Substituting (4) in to (3) gives the full income budget constraint.

$$Y_i = \left(UF + wT_{ij}\right) C + X_i \text{ ---------- (5)}$$

Substituting (2) and (5) in to (1) gives the conditional utility function:

$$U_{ij} = U\left((C_i, F_i; S_i, M, E, Z), Y_i - \left(UF + wT_{ij}\right)C + \varepsilon_{ij}\right) \text{--------- (7)}$$

This equation is used as the basis of a random utility model for polychotomous choice in the literatures (Hallman 1999). Polychotomous choice is a choice made among more than two alternatives.

The individual maximizes the unconditional utility function U* given by:

$$U^* = Max\left(U_0, U_1, ..., U_J\right) \text{---------- (8)}$$

Where U* is the highest utility the individual can attain. The solution to this equation gives the health care alternative that is chosen.

As long as the conditional utility function; U_{ij} in (8) is quasi-concave in H_{ij} and C_{ij}, and H_{ij} and C_{ij} are greater than zero, there exists a conditional indirect utility function (Abay, 2004) given by:

$$V_{ij} = V\left(C_i, S_i, M, E, Z, Y_i, UF, wT_{ij}, \varepsilon_{ij}\right) \text{---------- (9)}$$

ε_{ij} captures random shocks.

Equation (9) is the reduced form of the indirect utility function of alternative j and it is the basis of estimating health care demand functions in most of the literatures (Abay, 2004). The demand for a particular alternative (government, private, NGO/mission, or traditional care) is the probability that it yields the highest utility among those available. In a discrete modeling framework, this probability is interpreted as the demand function; its functional form depends on the functional form of the conditional utility function and the distribution of the stochastic terms. Individuals made care choices based on the comparison of indirect utility functions for each variety of health care available, including that of no treatment or self treatment. In practice, specification of demand is based on the difference between the utility of each market care alternative and that of no care (Hallman, 1999)

4.2 Empirical Specification of health care demand

The equations so far represent a general structural specification of a behavioral model of health care demand. Gertler et al. (1987) and Lindelow (2002) argued that the next stage in the implementation of this model is the choice of the functional form for the utility function in equation (9). There are many functional forms to choose from. The utility function needed should be consistent with both actual demand behaviors and with rules of rational choice.

There are two strands of modeling; the linear and the semi-quadratic (Aniceto et al., 1997) and most common empirical specification of this general framework is the linear model.

$$V_{ij} = \beta_1 X_{ij} + \beta_2 H_{ij} + \varepsilon_{ij} \quad \text{----------} \quad (10)$$

Mwabu et al. (1993) demonstrated a utility function developed by Gertler and van der Gaag (1990) which is linear both in health status and income, but in which income interacts with producer-specific attributes. This model is inconsistent with the behavioral axiom of preference maximization though it is consistent with empirical health care demand patterns. This is because the marginal utility of income can vary across health care providers, even when providers are assumed to produce the same improvement in health status at some constant price. In other words; Gertler et. al., (1987) found this formulation restrictive because it does not allow price elasticities to vary with income; that is, this specification assumed that responsiveness to prices is independent of income.

Gertler et al. (1987) argue that, in a discrete choice world, if health is a normal good, a rise in income increases the likelihood that individuals purchase " higher price/ higher quality" alternatives; which means, an increase in price is less likely to deter richer individuals from choosing the "higher price/ higher quality" alternatives. In a probabilistic sense, normality implies that richer individuals are less price elastic than poorer individuals. Dow (1995) found that constraining price and quality coefficients to be equal across health care alternatives is the most strongly rejected of all, and imposition of the assumption can have large effects on elasticities, which is important, given the policy focus of responses to user fees.

In response to this perceived weakness, they proposed an empirical specification based on a semi-quadratic utility function which is linear in health but quadratic in consumption (Lindelow, 2002). Gelrtler and Van der Gaag (1990) show that this model is consistent

with well-ordered preferences; it also generates typically observed demand patterns. This is the second strand. The specification can be written as follows:

$$V_{ij} = \beta_0 H_{ij} + \beta_1 X_{ij} + \beta_2 X_{ij}^{\ 2} + \varepsilon_{ij} \text{ ---------- (11)}$$

Where:

$$H_{ij} = H_0 + Q_{ij} \text{ ---------- (12)}$$

$$Q_{ij} = \alpha_{0j} + \alpha_{1j} S + \alpha_{2j} M + \alpha_{3j} E + \alpha_{4j} Z + \eta_j \text{ ---------- (13)}$$

And:

H_0 is the initial health status

Q_{ij} is the expected improvement from treatment

H_{ij} is the sum of initial health status and expected health improvement

According to Aniceto and Michael (1997) this strand of the literature constrains the coefficients of alternative-specific variables to be constant across alternatives following the requirements of the conditional logit model developed by McFadden (1981).

Q_{ij} represents the expected health improvement resulting from treatment from provider *j*. thus the expected health status conditional on care from provider *j*; H_{ij} is the sum of initial health status, H_0 and the expected health improvement, Q_{ij}. Lindelow notes that quality Q_{ij} is unobservable, so it is specified as a parametric function of its observable determinants where the expected improvement in health can be as being produced through a household

production function. The relevant arguments include individual (S), household (M), community (E), and provider (Z) characteristics.

Gerltler et. al., (1987) propose a reduced form model where utility is derived from quality. They produced the following equation:

$$V_{ij} = \beta_0 H_{ij} + \alpha_{0j} + \alpha_{1j} S + \alpha_{2j} M + \alpha_{3j} E + \alpha_{4j} Z + \eta_j + \beta_1 \left(Y_i - P_{ij} \right) + \beta_2 \left(Y_i - P_{ij} \right)^2 + \varepsilon_{ij}$$

---------- (14)

Where P_{ij} is the cost of care given by:

$$P_{ij} = \left(UF + wT_{ij} \right) C - P_F F_i$$ ---------- (15)

In this equation; there is no variation in income, Y_i and initial health, H_{ij} across providers. i.e., $\beta_{0j} = \beta_{0k}$, $\beta_{1j} Y_i = \beta_{1k} Y_i$, and $\beta_{2j}{}^2 Y_i = \beta_{2k}{}^2 Y_i$, for all k (Lindelow, 2002; Dow, 1999). Therefore these terms do not influence choice and can be dropped (Lindelow, 2002), giving the following specification:

$$V_{ij} = \alpha_{0j} + \alpha_{1j} S + \alpha_{2j} M + \alpha_{3j} E + \alpha_{4j} Z - \beta_1 P_{ij} - 2\beta_2 Y_i P_{ij} + \beta_2 P_{ij}{}^2 + \eta_j + \varepsilon_{ij}$$ ------ (16)

In this equation, there is an implicit assumption that the coefficient of income is the negative of the coefficient of price (Dow, 1999). As a result Dow proposed a flexible behavioral model given below:

$$V_{ij} = \gamma_{0j} + \gamma_{1j}S + \gamma_{2j}M + \gamma_{3j}E + \gamma_{4j}Z + \gamma_{5j}P_{ij} + \gamma_{6j}P_{ij}^{2} + 2\gamma_{7j}Y_iP_{ij} + \gamma_{8j}Y_i + \gamma_{9j}W + \gamma_{10j}T_{ij} + \gamma_{11j}P_{ik} + \theta_{ij}$$

---------- (17)

In the case of a discrete choice model, the price elasticity of demand is defined as the percentage change in the predicted probability of demanding medical care from health care provider j as a result of a 1% increase in the user fees of the same provider j, evaluated at sample means (Abay, 2004).

Marginal effects or Odds ratios are used for interpretation because as Greene (2004) underlines, the coefficients of multinomial regressions results are difficult to interpret. The marginal effect δ_{jm}, of the change in an explanatory variable (x_m) on the on the choice probability of healthcare provider of j^{th} is given by (Boukary, 1998)

$$\delta_{jm} = \frac{\partial P_j}{\partial x_m} = P_j\left(\beta_j - \sum_{j=1}^{3} P_j\beta_j\right) = P_j\left(\beta_j - \overline{\beta}\right), j = 1,2,3 \text{ ---------- (18)}$$

Where P_j the probability of is choosing alternative j, δ_{jm} measures the impact of explanatory variables on choice probability of provider j, and β is the coefficient of the explanatory variables. Greene (2000) remarked that δ_{jm} need not have to be of the same sign as β_{jm}. On the other hand, odds is given by $p/(1-p)$. The odds ratio refers to the ratio of two log-odds and the ratio is constant (Gould and James, 2005)

The coefficients from a logistic regression model are called log-odds ratios. They tell us how the log-odds change with a one-unit change in the independent variable. Increasing the

log-odds means increasing the probability, and vice-versa decreasing the log-odds means decreasing the probability. Therefore, the sign of the log-odds ratio indicates the direction of its relationship: + means a positive relationship between the explanatory variable and the likelihood, and - means a negative relationship. The exponential of the log-odds ratio gives us the odds-ratio itself. But all odds-ratios are positive values. The distinction regarding a positive or negative relationship in the odds ratios is given by which side of 1 they fall on. 1 indicates no relationship. Less than one indicates a negative relationship and greater than one indicates a positive relationship.

4.3 Methodological Review

Utility based on the relative attractiveness of competing alternatives from a set of mutually exclusive alternative is called a discrete choice. The decision maker chooses the alternative with the highest utility. Characteristics of the decision-maker and of the choice alternatives determine the alternatives' utilities (Silberhorn, et. al, 2006).

In such qualitative response models, the variable to be explained, y is a random variable taking on a finite number of outcomes; in practice the number of outcomes is usually small. The leading case occurs where y is a binary response, taking on the values zero and one, which indicate whether or not a certain event has occurred (Wooldridge, 2003). In such a case, when the dependent variable takes 1 or 0 value, it is said to be dichotomous in nature. The dichotomous variable is a special case of the polychotomous or multiple category dependent variables. Polychotomous choice will occur if the choice is more than two.

Discrete choice models can be used to analyze and predict a decision maker's choice of one alternative from a finite set of mutually exclusive and collectively exhaustive alternatives. Such models have numerous applications since many behavioral responses are discrete or qualitative in nature: that is, they correspond to choices of one or another of a set of alternatives (Koppelman and Bhat, 2006). The ultimate interest in discrete choice modeling, as in most econometric modeling, lies in being able to predict the decision making behaviour of a group of individuals. A further interest is to determine the relative influence of different attributes of alternatives and characteristics of decision makers when they make choice decisions.

The mathematical form of a discrete choice model is determined by the assumptions made regarding the error components of the utility function for each alternative. The specific assumptions that lead to the multinomial logit model are (1) the error components are extreme-value (or Gumbel) distributed, (2) the error components are identically and independently distributed across alternatives, and (3) the error components are identically and independently distributed across observations/individuals. The Gumbel distribution is computationally advantageous and closely approximates the normal distribution and produces a closed-form probabilistic choice model (Koppelman and Bhat, 2006)

Multinomial logit applies to discrete dependent variables that can take unordered multinomial outcomes, for example, $y = 1, 2, 3, ...$ that represents a set of mutually exclusive choices. The numerical values of y are arbitrary and in this case they do not imply any natural ordering of outcomes. A classical example in economics is "modal choice" in

transport. Here, the outcomes could represent different modes of transport, for example, plane, train, car and the individual faces a choice of one of these mutually exclusive modes of transport. This choice will depend on characteristics of the alternatives, such as price, convenience, quality of service and so on, and the characteristics of individuals, such as their level of income. Some of the characteristics of the alternatives, such as distance to the nearest hospital, may vary across individuals as well. There is unlikely to be a natural ordering of the choices that applies to all individuals in all situations. In health economics, multinomial models are often applied to the choice of health insurance plan or of health care provider. They could also be used to model a choice of a particular treatment regime for an individual patient.

The most commonly applied model is the mixed logit model which is a natural extension of the binary logit model. In the mixed logit model, the probability of individual *i* choosing outcome *j*, is given by,

$$p_{ij} = \frac{\exp\left(x_i\beta_j + z_{ij}\gamma\right)}{\sum_k \exp\left(x_i\beta_{ik} + z_{ik}\gamma\right)}$$

The coefficients, β_j on the explanatory variables vary across individuals (x_i) are allowed to vary across the choices, *j*. so, for example, the impact of income could be different for different types of health care provider. The coefficients (γ) on the variables that vary across individuals $\left(z_{ij}\right)$ are constant. So for example, there may be a common price effect of the choice of provider. The mixed logit nests two special cases: "characteristics of the chooser" model, and "the characteristics of the provider" (Silberhorn, et. al, 2006).

In the multinomial logit model, it is not possible to identify separate βs for all of the choices. The βs for one of the outcomes will be set to be equal to zero. This normalization reflects the fact that only relative probabilities can be identified with respect to some base-line alternative.

The multinomial logit model is restrictive because it implies the *independence of irrelevant alternatives* (IIA) property. To see this, consider the ratio of the probabilities of choosing two specific alternatives, *j* and *l*.

$$\frac{p_{ij}}{p_{il}} = \frac{\left[\exp\left(x_i\beta_j + z_{ij}\gamma\right)/\sum_k \exp\left(x_i\beta_k + z_{ik\gamma}\right)\right]}{\left[\exp\left(x_i\beta_l + z_{il}\gamma\right)/\sum_k \exp\left(x_i\beta_k + z_{il}\gamma\right)\right]}$$

$$= \frac{\exp\left(x_i\beta_j + z_{ij}\gamma\right)}{\exp\left(x_i\beta_l + z_{il}\gamma\right)}$$

This shows that the relative probability only depends on the coefficients and characteristics of the two choices – *j* and *l* – and not on any of the other choices available. This implies that if a new alternative is introduced all of the absolute probabilities will be reduced proportionately (Jones, 2005)

The IIA property has some important ramifications in the formulation, estimation and use of multinomial logit models. The independence of irrelevant alternatives property allows the additions or removal of an alternative from the choice set with out affecting the structure or parameters of the model. The flexibility of applying the model to cases with different choice set has a number of advantages. First, the model can be estimated and

applied in cases where different members of the population (and sample) face different sets of alternatives. For example, in the case of intercity mode choice, individuals traveling between some city pairs may not have air service and/or rail service. Second, this property simplifies the estimation of the parameters in the multinomial logit model. Third, this property is advantageous when applying a model to the prediction of choice probabilities for a new alternative (Koppelman and Bhat, 2006). On the other hand, IIA property may not properly reflect the behavioural relationships among groups of alternatives. That is, other alternatives may not be irrelevant to the ratio of probabilities between a pair of alternatives. In some cases this will result in erroneous predictions of choice probabilities.

The mixed logit model is used to test whether the IIA property is appropriate. This test works with three or more alternatives. The basic idea is to estimate the model with all of the alternatives and then to re-estimate it dropping one or more of the alternatives. This is based on the Hausman test for whether there is a significant difference between two sets of coefficients: one set that are efficient under the null (IIA holds) but inconsistent under the alternative (IIA does not hold) and another set that are inefficient under the null but still consistent under the alternative. In this case the first set of coefficients would be taken from the model with all the alternatives included, the second from the model with an alternative excluded (Jones, 2005).

This study considers that households have preferences among several categories of health care providers and make the choice which maximizes their perceived indirect utility subject to their constraints. The choice of a given health care provider will depend on specific socio-economic characteristics of each household, characteristics of the individual, and access variables. These characteristics differ from individual to individual. The dependent

variables consist of three alternatives; that is, public, private, and other. The third alternative, "other" comprises options such as traditional, NGO, or self care. The base outcome of the regression is public provider.

For i^{th} household faced with the j^{th} choice, the utility function can be written as:

$$U_{ij} = \beta x_i + \varepsilon_{ij}$$

Where i indexes the observation or individual, j indexes the choices, β the coefficients vector, x_i is a vector of household characteristics, and ε_{ij} are model disturbances which are assumed to be independently and identically distributed with extreme value distribution.

If U_j is maximum among the three alternatives, the household makes choice j in particular. That is, j is chosen if $U_j > U_k, \forall j \neq k$. The dependent variables which are health care providers are defined over three dummy variables taking on value 1 if the household's choice falls on the j^{th} alternative, and value 0 otherwise. This produces the choice probabilities as follows:

$$pr(y_{ij} = j) = \frac{\exp(\beta_j x_i)}{\sum_{m=1}^{j} \exp(\beta_m x_i)}, j = \{1,2,3\}$$

The estimated equation provides a set of probabilities for three choices. The multinomial logit model is estimated by maximum likelihood method.

4.4 Source of Data

The data set used in this study is the Ethiopian Urban Socio-Economic Survey conducted in 2004 by the Department of Economics of Addis Ababa University in collaboration with the Department of Economics, University of Goteborg in Sweden.

The survey included 1,500 households and 8,051 individuals from 7 cities; namely Addis Ababa, Awassa, Bahir Dar, Dessie, Dire Dawa, Jimma, and Mekele. The data set include basic socioeconomic characteristics of the household and its members as well as health status and health facility utilization and expenditure in the facilities from which care is sought. Information was taken for all members who complained about their health in the last four weeks prior to the survey. Total number of individuals who reported illness was 332.

4.5 Description of Variables and Their Hypothesized Sign

Dependent Variables

The dependent variables are classified in to three alternatives: public providers, private providers, and "other".

Explanatory Variables

The explanatory variables are grouped in to three: individual specific variables, household level variables and access variables. The individual specific variables are age of the individual, sex of the individual, relation of the individual to the head of the household, and severity of illness.

The household level variables are age of the household head, sex of the household head, education of the household head, wealth status, wage rate, income, and number of members in the household. Availability of hospital, price of health care (user fees) in each provider, waiting time at the facilities and distance to the facilities are included in the access variables.

Table 4.1 Summary of variables used in the regression and their expected sign

Variables	Measurement	Expected Sign		
		Public	Private	Other
age of individual	in years	+/-	+/-	+/-
sex of individual	as dummy variable	+/-	+/-	+/-
relation of individual to the head	as dummy variable	-	-	+
severity of illness	in days	+	+	+/-
age of the household head	in years	+	+	+/-
sex of the household head	as dummy variable	+	+	+/-
education of head	as dummy variable	+	+	-
wealth	in birr	+/-	+	-
income	in birr	+	+	+/-
household size	in number	-	-	+
user fee	in birr	-	-	-
waiting time	in seconds	-	-	-
town	as dummy variable	+	+	-

Table 4.2 definition of variables

Dependent variable	Definition
type	type of health care provider consulted = 1 if public, 2 if private, 3 otherwise
Independent variable	
agey	age of the individual in years
sex	sex of the individual = 1 if male, 0 otherwise
relation	relation of the individual to the household = 1 if son, daughter or spouse, 0 otherwise
duration	number of days the individual suffered from the illness
agehead	age of the household head in years
sexhh	sex of the household head = 1 if male, 0 otherwise
education	education of the household = 1 if literate, 0 otherwise
lnwealth	natural logarithm of wealth
lncons	natural logarithm of income
hhsize	number of members in the household
lnuserfee	natural logarithm of health expenditure per episode of illness
waitime	total time spent in seeking care including travel time
town	area dummy = 1 if the individual is in Addis, 0 otherwise

CHAPTER FIVE

DISCUSSION OF EMPIRICAL FINDINGS

5.1 Descriptive Statistics

As discussed in the previous chapter the data source of this study is the Ethiopian Urban Socio-Economic Survey. Relevant variables that determine the choice of health care provider are selected based on a random utility model, their importance in the literature and their availability in the data.

The total number of individuals surveyed was 8020. Among these individuals who reported illness in the past 4 weeks prior to the survey were 332. But only 218 sought care. Individuals who were ill but did not seek care were asked reasons for not seeking treatment. 35% of them did not consult because they think the disease is non treatable and 30% because they got mild illness. The remaining said cost of care is too expensive and thus they did not consult.

Larger proportion of the respondents (55.5%) tended to get treatment from the government institutions. Among these 45% are males and the remaining are females. The cumulative percentage of individuals who went to either public or private providers is 95%. The remaining went to “other” providers such as non governmental facilities or traditional healers.

Table 5.1 Percentage of individual who sought treatment in each provider

Type of facility sought for treatment	Frequency	Percent	Cumulative
Public	121	55.50	55.50
Private	88	40.37	95.87
Other	9	4.13	100.00
Total	**218**	**100**	

Table 5.2 Number of individuals who sought treatment in each provider by sex

Sex of the individual	Type of facility sought for treatment			
	Public	**Private**	**Other**	**Total**
Male	54	40	2	96
Female	67	48	7	122
Total	**121**	**88**	**9**	**218**

As shown in table 5.2 on average, 57% of the households are male headed and individuals from these households prefer formal facility care compared to the female headed ones. Female headed households prefer public to private providers. 64% went to public and only 32% went to private providers. Those who went to traditional healers are all females. This may be due to the fact that most women have low economic status hence unable to pay for public or private health care providers.

Table 5.3 Percentage of the household head who sought care by sex

Sex of the head	Frequency	Percent	Cumulative
Male	126	57.80	57.80
Female	92	42.20	100.00
Total	**218**	**100.00**	

Table 5.4 Number of the household head who sought care by sex and type of health care provider

Sex of the head	Type of facility sought for treatment			
	Public	**Private**	**Other**	**Total**
Male	62	59	5	126
Female	59	29	4	92
Total	**121**	**88**	**9**	**218**

The mean income was 807 and the mean expenditure to health care is 76.7. The maximum amount of money paid to treatment is 1000 Birr. And the minimum was 1 Birr. The wealth status of the respondents' range from 30 to 508,320; the mean wealth being about 9879.

Table 5.5 Economic status and health care expenditure

Variable	Mean	Std. Dev.	Min	Max
income	807.17	761.74	26.2	5913.8
wealth	9879.45	41565.34	30	508320
user fees	76.66	118.83	1	1000

Consumption is used as a proxy for income because there will always be under reporting of income; similarly household's durable assets are used as surrogate for wealth. User fees refer to health expenditures per illness episode.

Table 5.6 Percentage of individuals by education level

Education Level	Frequency	Percent	cumulative
Primary	45	20.64	20.64
Secondary	24	11.01	31.65
Tertiary	22	10.09	41.74
unreported	127	58.26	100
Total	218	100	

Table 5.6 presents the educational level of the household. As it shows the largest portion of the household did not report their education level.

Table 5.7 Percentage of individuals by income quartile

Income quartile	frequency	percent	cumulative
Poorest	109	50	50
2^{nd} poor	98	44.95	94.95
Middle	11	5.05	100
total	218	100	

Most studies use five income quartiles to divide the people by socio economic group, but the individuals in the data used for this survey fall in the lower three classes. That is, half of them found to be in the poorest quartile with monthly income less than 600. 45% of them are in the 2^{nd} poor income quartile and the remaining 5% on the middle income quartile. This in turn shows that the poor are more vulnerable than the better-off.

5.2 Determinants of Healthcare Provider Choice

Before estimation of the model, pre-estimation tests are conducted. Test of multicollinearity found age and age squared to be collinear hence age squared is dropped. Since heteroscedasticity is common in cross section data; this study runs regressions with and without robust standard errors. In addition, some continuous independent variables such as household monthly income, household wealth and medical expenditure were transformed into natural logarithm form in order to smooth out the variance in the distribution of these variables.

The results of the estimation of the Multinomial Logit Model are presented in table 5.8; and table 5.9 presents the results with robust standard errors. Table 5.10 presents the log-odds or the relative risk ratio (RRR) of the results. The dependent variable used was health care choice represented by "Type", while the regressors are individual, household, and access variables. The coefficients of each variable reflect the effect of a change in each of the variables on the probability that the individual will choose a certain provider relative to public provider.

As shown in table 5.8 among the individual specific variables, sex of the individual and the household head, household size, and education are found to be statistically insignificant determinants of choice to private health care provider relative to public provider. But none of the individual specific variables is significant in the case of category "other". A unit increase in age would lead to a 2.9% decrease in the log-likelihood ratio of private to public. The relation to head also has a significant impact on the log of the ratio. The log likelihood ratio of private to public decreases as we move from immediate family members

(son/daughter or spouse) to other relatives of the family. The ratio will fall by about 90%. Severity of illness as measured by duration of illness is also found to be significant in determining the likelihood of seeking care.

The ratio of the probability of choosing one outcome category over the probability of choosing the reference category is often referred as relative risk (and it is some times referred to as odds) (Gould, and James, 2005). So another way of interpreting the regression results is in terms of relative risk. The odds in table 5.10 shows that for one unit change in the variable age, the relative risk of choosing private over public decrease by 0.97. This means the probability of going to private relative to public provider is lower for older people. In other words older people prefer public to private providers. The odds of private to public; for variable "relation", shows that the relative risk in favour of immediate family members increases by 0.04. This means the probability of going to private health care providers relative to the public one is higher for immediate family member compared to other members of the family.

Among the household characteristics variables, wealth and level of income have positive effect on the log-likelihood of private provider to public provider. But wealth negatively affects the ratio in the case of "other" providers. According to table 5.9 as wealth increases by 1 unit the likelihood ratio of private to public provider will increase by 0.25 while, the ratio of "other" to public providers will decrease by 1.2. In terms of odds ratio table 5.10 shows that the odds of wealth between private and public is 1.29 while it is 0.29 between "other" and public private. This means those with higher income prefer private to public or "other" providers. Age and sex of the household head are also found to be important

determinants of provider choice in the case of private providers. The odds ratio for male headed households is 1.7. This implies male headed households are more likely to go to private relative to public providers than female headed ones. In addition older family heads prefer private to public providers. Education is found to be positively related but insignificant. The insignificancy of this variable may arise from incomplete report of the education level by the household.

The coefficient of user fee takes the expected negative sign and is statistically significant in the case of both private and "other" providers. The odds of the variable user fee is 0.53 and 0.29 for private and "other" categories respectively. This means the probability of seeking care from private and other provider instead of public provider decreases significantly as price increases: that is, as prices increases individuals prefer to go to public providers. This indicates the importance of price for the provider choice. Similarly waiting time negatively affects the probability of provider choice between private and public. Waiting time in the case of category "other" has an unexpected positive sign and even it is found to be significant. This may indicate that those individuals who prefer other alternatives than public or private such as traditional care will not be discouraged from going there though more time is needed and this may in turn be because these people have low ability to pay in public or private so that they prefer to pay less and wait as much time as required in "other" providers which would possibly charge lower price compared to public or private providers. Or this may be due to few observations of the alternative in the model. Place of residence, has also significant effect on the probability of choice of health care providers. People living in Addis tend to seek care from private (with odds 0.37) than from public provider compared to those living in other cities of the country.

Table 5.8 Multinomial Logistic Regression Results

		Number of Observation = 218	
		LR chi2(26) = 109.61	
		Prob > chi2 = 0.0000	
Log likelihood = -124.94295		Pseudo R2 = 0.3049	
Type	Coefficient	Std. Err.	P-Value
Private			
agey**	-.0296008	.0130082	0.023
sex	-.1710098	.3754588	0.649
relation***	-.8971063	.5037444	0.075
duration **	-.0591385	.0226849	0.009
agehead**	.0476216	.0172247	0.006
sexhh	.5598353	.3892106	0.150
education	.2791707	.3696506	0.450
lnwealth***	.2543146	.1394189	0.069
lncons**	.6403171	.2916441	0.028
hhsize	.0289859	.0804804	0.719
lnuserfee*	-.6358470	.1598897	0.000
waitime*	-.0051869	.0017683	0.003
town**	-.973421	.373591	0.009
constant	-8.76784	1.855497	0.000
Other			
agey	-.0146989	.0401458	0.714
sex	-1.67154	1.130067	0.139
relation	.3527381	1.229556	0.774
duration	.0311547	.0522128	0.551
agehead	-.0617174	.0507567	0.224
sexhh	.3668034	.9297833	0.693
education	.4258899	.9758174	0.663
lnwealth**	-1.233077	.4372237	0.005
lncons**	2.200525	.7979163	0.006
hhsize***	.4129624	.2597278	0.112
lnuserfee**	-1.237888	.6583551	0.060
waitime**	.0037419	.0014659	0.011
town***	1.947231	1.211985	0.108
constant	-6.147898	4.740092	0.195

(Public is the base outcome)
*significant at 1% and less, ** significant at 5% and less, ***significant at 10% and less
Source: Author's estimation.

Table 5.9 Multinomial Logistic regression results with Robust Std.Err

		Number of Observation = 218	
		Wald chi2(26) = 107.60	
		Prob > chi2 = 0.0000	
Log likelihood = -124.94295		Pseudo R2 = 0.3049	
Type	Coefficient	Robust Std. Err.	P-Value
Private			
agey**	-.0296008	.01063	0.005
sex	-.1710098	.3888786	0.660
relation**	-.8971063	.4551186	0.049
duration **	-.0591385	.0219285	0.007
agehead*	.0476216	.0161451	0.003
sexhh	.5598353	.3940827	0.155
education	.2791707	.3779957	0.460
lnwealth**	.2534146	.1165304	0.030
lncons**	.6403171	.2936687	0.029
hhsize	.0289859	.0835034	0.728
lnuserfee*	-.6358470	.1653034	0.000
waitime*	-.0051869	.0017666	0.003
town**	-.973421	.3855481	0.012
constant	-8.76784	2.052116	0.000
Other			
agey	-.0146989	.0207989	0.480
sex	-1.67154	1.095718	0.127
relation	.3527381	.9064064	0.697
duration	.0311547	.0517627	0.547
agehead***	-.0617174	.0358567	0.085
sexhh	.3668034	.8752862	0.675
education	.4258899	.9722133	0.661
lnwealth*	-1.233077	.3079577	0.000
lncons*	2.200525	.717782	0.002
hhsize***	.4129624	.2329346	0.076
lnuserfee**	-1.237888	.4551418	0.007
waitime**	.0037419	.000818	0.000
town**	1.947231	.8589818	0.023
constant	-6.147898	4.899076	0.210

(Public is the base outcome)
*significant at 1% and less, **significant at 5% and less, ***significant at 10% and less
Source: Author's estimation.

Table 5.10 Multinomial Logistic regression results of Odds-Ratios

		Number of Observation = 218	
		Wald chi2(26) = 107.60	
		Prob > chi2 = 0.0000	
Log likelihood = -124.94295		Pseudo R2 = 0.3049	
Type	RRR	Robust Std. Err.	P-Value
Private			
agey**	.970833	.0103199	0.005
sex	.8428133	.327752	0.660
relation**	.4077478	.1855736	0.049
duration **	.9425762	.0206693	0.007
agehead*	1.048774	.0169326	0.003
sexhh	1.750384	.6897961	0.155
education	1.322033	.4997228	0.460
lnwealth**	1.288417	.1501398	0.030
lncons**	1.897082	.5571138	0.029
hhsize	1.02941	.0859593	0.728
lnuserfee*	.5294868	.3121954	0.000
waitime*	.9948266	.0017575	0.003
town**	.3777884	.1456556	0.012
Other			
agey	.9854086	.0204954	0.480
sex	.1879574	.2059482	0.127
relation	1.422958	1.289779	0.697
duration	1.031645	.0534008	0.547
agehead***	.9401485	.0337106	0.085
sexhh	1.443114	1.263138	0.675
education	1.530952	1.488412	0.661
lnwealth***	.2913945	.0897372	0.000
lncons*	9.029756	6.481397	0.002
hhsize***	1.511288	.3520313	0.076
lnuserfee**	.289996	.1319893	0.007
waitime*	1.003749	.0008211	0.000
town**	7.009252	6.02082	0.023

(Public is the base outcome)
*significant at 1% and less, **significant at 5% and less, ***significant at 10% and less
Source: Author's estimation.

5.3 Marginal Effects

The impact of user fees on the health care demand can be better analyzed by using price elasticities of demand or marginal effects. Table 5.11 presents marginal effects of the explanatory variables on the provider choice computed at the means of the explanatory variables.

Table 5.11 Marginal Effects of variables after multinomial regression

Variables	Type of Facility	
	Public	Private
agey**	.0067196	-.0067092
sex	.0411631	-.0372732
relation***	.1896248	-.1913273
duration*	.0133306	-.0134546
agehead*	-.0106775	.0108651
sexhh	-.1249597	.1245468
education	-.0641792	.0633738
lnwealth**	-.0554108	.0585741
lncons*	-.148288	.1435565
hhsize	-.0072007	.0062364
lnuserfee**	.1419224	-.1454171
waitime*	.0011676	-.0011809
town**	.2190034	-.2244392

*significant at 1% and less, **significant at 5% and less,
***significant at 10% and less

9 of 13 estimated coefficients are statistically significant at 10% or less level. This means reasonable number of coefficients is significantly different from zero. And most of the explanatory variables have the expected sign.

Age and sex of the household head negatively affects the probability of demanding care from public institutions. Male headed families decrease usage of public care by 12%. This may be because males are financially better than females so that can pay fees of private institutions. Similarly, for older family heads the probability of demanding care from public decreases by 1.1%. This may also be due to better economic status as age increases.

Severity of illness is also reveled to be significant both for public and private. The marginal effect shows that as days lost due to illness increase by 1, the probability of seeking care from public increase by 1.3%. This means when people suffer chronic illness they prefer to go to public than to private or other providers. This may be because they can get more examination and can be referred to a specialized hospital in addition as the illness is sever the cost of care will increase and may be unbearable in the case of private providers.

Relation of the individual to the head has effect on seeking care and from which provider. The marginal effect of this variable indicates that as we move from relatively far families to immediate ones the probability of going to public provider fall at 19%; and rise at the same magnitude for private.

Economic status of a household also has significant impact on health care choice. Income and wealth are indicators of standard of living. Both have negative marginal effect for the probability of choosing public care. As we move from poorer to richer families, the probability of seeking care from public decreases by 5.5% and 15% respectively for wealth and income. And increase for the private at the same magnitude. This implies that higher income earners sought for the service of private, because they can bear the cost of care.

A one birr increase in user fee is found to increase and decrease the probability of seeking care by 0.14% for public and private providers respectively. This may be because as the price of health care increase individuals tend to go to public which will relatively have lower price compared to private. This is the demand diversion effect of user fees.

The increase in waiting time decreases the probability of seeking care from private. If waiting time increase people prefer to go to public than to private. This may be because one of the reasons for seeking treatment from private providers is to get faster consult. But if the time increases they go to other providers to compensate for other costs of care seeking.

Sex of the individual and education are not significant. Education is found to be insignificant may be because all respondents did not reveal their education level. In addition, all variables in "other" category are found to be insignificant may be due to few observations which may not be representative.

As pointed out in the literature the health care demand in most developing countries was thought to be price inelastic. But this study find that as we move from the poorest to the relatively non-poor the probability of seeking care will decrease in private providers compared to public providers. At the same time the rise in the price would increase the probability of going to "other" providers (than private or public ones) will increase. As shown in table 5.12, for a 1% increase in user fees by public providers, the poorest will decrease utilization by 25% while the second poor will decrease the utilization by 18%. The same amount of increase in user fees in private providers has a much more decrease of

utilization; 68% for the poorest and 57% for the 2nd poor. The elasticity of utilization with respect to health expenditure for the middle class is positive which is contrary to literature. This may be due to small number of individuals in the middle class which would not be representative. This implies that user fees have serious negative impact on the poorest. The poor will reduce demanding treatment from these providers and search treatment from other sources such as traditional healers or self care.

Table 5.12 Elasticity of utilization of medical care with respect to user fees by socio-economic status

Socio-economic group	Elasticity (Public provider)	Elasticity (private provider)
Poorest	-0.25	-0.68
2nd poor	-0.18	-0.57
Middle	0.42	0.44

Table 5.13 Comparison of income and health care expenditure by income quartiles

Socio-economic status	observation	mean	std. Dev.	Min	Max
Poorest					
user fees	109	52.58716	72.44298	1	417
income		352.1961	124.7192	26.2	591
2nd poor					
user fees	98	91.02041	116.6212	5	610
income		1036.357	356.9371	603.5	1986.3
Middle					
user fees	11	187.2727	309.8923	10	1000
income		3273.787	1312.936	2044	5913.8

The table above (5.13) shows that the poor pay the greater proportion of their income than the relatively non poor. The poorest quartile of the population paid 15% of their income, while the second poor and the middle class paid 8.5% and 5.7% of their income

respectively. This implies that user fees are regressive and hit hard the poorest and the disadvantaged segment of the population. This indicates that the poor are paying for health at the expense of other necessities; Implying the mechanisms like fee waivers to protect the poor not working.

Table 5.14 Type of facility sought for treatment by socio-economic status

socio-economic status	Type of facility sought for treatment			Total
	Public	private	Other	
Poorest	75	30	4	109
2nd poor	45	48	5	98
Middle	1	10	0	11
Total	121	88	9	

Table 5.14 shows that, among the total individuals who went to public providers about 61% of them were the poorest. And majority of the middle income group went to private providers. This implies that the poor will prefer public providers to private ones; and the reverse will be the case as income increases.

Tests of independence of irrelevant alternatives is shown in table B-2 of appendix B. test results show that in one of the two cases the null hypothesis is (that is IIA holds) is not rejected and in the other case it is rejected. The inconsistency shows that there are problems with omitted variables, which cannot be solved by changing to another model or there are significant differences in the factors associated with each health care alternative.

Measuring goodness of fit of multinomial logit model and other non-linear models is difficult. R2 is not reliable in such models as the linear regression models (Koppelman and Bhat, 2006). So that pseudo R2 is used in such models pseudo relates the value of restricted and unrestricted log likelihood. Since the maximum value of dependent variable in the probabilistic model is one, pseudo R2 is much lower compared with the normal R2 obtained in the linear regression (Maddala, 2002). That is lower pseudo R2 does not mean lower predictive power of the model. Thus test goodness of fit is not as important as statistical and economic significance of the explanatory variables. However, in this model the pseudo R2 value obtained is about 30% and this value is quite large.

CHAPTER SIX
CONCLUSION AND POLICY IMPLICATIONS

Due to poor economic performance, a high population growth rate and other factors, governments in sub-Saharan African countries could not meet the Alma Ata declaration of "health for all by the year 2000" , they could not provide health for all and could not finance the sector sufficiently. As a result, cost recovery mechanisms such as user fees were advocated as a means of financing the health sector. The World Bank argued that user fees could reduce frivolous demand but the primary objective of user fees was additional revenues to improve the health service delivery.

The MOH produced health care financing strategy in 1998 which has increasing user fees as one goal to improve the health sector performance. But increasing user fees at the current situation of the population will have negative impact on the sector's service delivery and on the service utilization of the people especially the poor and this will aggravate the poor health situation of the population. User fees by definition are regressive so decrease utilization specifically by the poorest segment of the population.

There is no consensus about the impact of user fees on health care demand behaviour of the households especially on the poor and the socially disadvantaged part of the population. The results of this study by analyzing the health care demand behaviour of households in the urban areas of Ethiopia show that user fee as one important factor determining medical care and provider choice.

The over all results show that user fees have very strong negative impact on the utilization of health care services. The multinomial logit results reveal that the poor are more sensitive to the user fees of public. That is user fees decrease the probability of going to the public providers by the poor relative to the better offs. As user fees increase by 1% the probability demanding care from public providers decrease by about 25%. The results of the study also indicate the poor pay the greater proportion of their income than the better off. It was found that the poorest pay 15% of their income while the better ones pay only 5.7% of their income. This implies that user fees are inequitable, and reduce utilization by the poorest than the better off. This proves that user fees are significant barriers to access healthcare by the poor.

The poor are more likely to fall ill but less likely to get treatment compared to the economically better ones. And seek treatment from less costly providers because their ability to pay is low. The health policy of FMOH says there should be a scheme of payments according to ability. But this study found the economically weak paying greater proportion of their income. The policy also have the principle of providing especial assistance mechanism for those who can not afford to pay but the poor are paying even more; this implies the mechanism of protecting the poor not working.

This results indicate that the current argument in the country and else where (World Bank, 1987) that more resources can be generated for the health sector by increasing user fees with out negatively affecting the utilization of medical care to be reconsidered. The results also indicate that policies designed to generate additional resources will reduce utilization especially by the poorest which aggravate the existing inequalities and this deepen the

poverty of this people because illness reduces their productive capacity. So it is better to develop other financing mechanism. Out of pocket payments should be changed by pre-payment schemes like community based insurance than to depend on user fees. It is clear that the poorest will prefer the cheapest providers; and public providers are relatively cheaper than private provider and are mostly visited by the poorest; this study found about 98% of those visiting public to be poor. So increasing prices at the public provider will directly affect the poor. Therefore, increasing user fees at the facilities frequently visited by the majority should not be taken as a feasible means of generating additional resources with out taking appropriate measures to protect the poorest and vulnerable group of the population.

Moreover, user fees are not retained and reinvested in quality improving activities (such as availability of drug) by the collecting body as expected in the Bamako Initiative but are remitted to the Ministry of Finance. But doing so may generate supplier-induced demand (such as over-diagnosis) which increases the cost more.

The issue on the removal of user fee is strong and unquestionable at least for primary health care because user fee raise only little money so that it can not help much the financing of the health sector but have major adverse effect on access of the poor to medical care. However it may not be the way out for now because sustainable funding should be prepared to compensate the revenue lost from user fees since the government is unable to cover all costs of health care

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Appendix C: Addis Ababa Principles on Cost Sharing in the Social Sectors – How to Minimize the Damage.

Cost sharing in the forma of user charges should be considered only after a thorough examination of other options for financing social services, including tax reform, budget restructuring and expenditure targeting within the government budget and aid flows. General taxation and other forms of government revenue are more effective, efficient and equitable methods of raising revenue for the financing of social services than cost sharing mechanisms.

Though general: taxation is a more cost-effective way to raise revenue there are two specific objectives for cost sharing: (i) to limit the financial burden on the budget that stems from the rapid increase in demand for, non-basic services, which the state cannot meet on its own without the diversification of, providers, and (ii) to overcome the practical and managerial obstacles that have prevented an adequate level of resources from reaching basic education and basic health.

Efforts to reduce costs in the delivery of social services, as well as to increase the efficiency in resources allocations to the primary level, must be considered prior to the introduction of cost sharing.

Basic social services should be provided either free of charge or be substantially subsidized. Basic education should be free and other out-of-pocket costs to parents such as school uniforms and school supplies should be minimized. Cost sharing in health should exempt preventive care whose benefits extend beyond the users (e.g. immunization) and selected primary services. Cost sharing should be a stepping stone towards other financing options for healthcare.

When considering cost sharing it should be as part of a comprehensive sector strategy: for both health and education, formulated by government with all stakeholders. The sector

strategy should specify clear, measurable and verifiable objectives, the resources required to meet-those objectives, and ways of mobilizing and allocating them among competing priorities.

Resources generated through cost sharing should be additional and should not be a substitute for existing resource allocations to the education and health sectors.

To be successful and sustainable, cost sharing must lead to immediate and measurable improvements in the access and quality of services. In this regard, revenue generated through cost sharing must be retained, with the spending authority at the local level. Disadvantaged regions and communities may need extra financial support to avoid cost sharing leading to a widening of regional, socio-economic and gender disparities.

Cost sharing must be accompanied by special measures that effectively protect the poor. Experience shows that the poor have not been effectively protected against the negative impact of cost sharing on their access to basic education and basic health. While cost sharing may be necessary because of severe constraints in terms of financial resources and/or institutional capacities, caution must be exercised wherever there is doubt about the ability to protect the poor. No one child should be deprived of his or her right of access to basic education and basic health.

Non-discretionary exemption schemes should be preferred from the point of view of efficiency. Discretionary exemption schemes have not succeeded in identifying and protecting the poor. Although more benefits may leak to the non-poor non-discretionary exemption criteria such as age, gender, region, and type of service are less likely to affect the access of the poor to services. Moreover, discretionary criteria, such as income and physical assets can be difficult and costly to administer.

Involvement of beneficiaries is critical to the success and sustainability of cost sharing. Community participation and control of resources must be a fundamental characteristic in the process of designing appropriate cost sharing mechanisms and their management. The

role, rights and responsibilities of local communities' vis-à-vis government and service providers must be discussed and clarified prior to the implementation of cost sharing.

Community participation and management must not be considered as a substitute for government's responsibility in the financing and management of the social sectors but should be seen as an essential element in improving service delivery.

Communities should be made fully aware of the principles and implementation mechanisms of cost sharing. Training and capacity building of community management committees and service providers is essential to its success.

Local management committees should be locally elected and fully accountable to the community and should ensure adequate representation of all stakeholders, including a balanced gender presence.

Cost sharing mechanisms should be carefully tested through phasing and/or piloting before applying them on a large-scale. Testing is meant to assess their impact on effectiveness, efficiency and equity at the local level. The administrative costs of implementing cost sharing must be kept to a minimum.

Cost sharing mechanisms must be regularly monitored and evaluated wit a view to ensuring quick feedback on the consequences of cost sharing, particularly regarding the impact on the poor, women, and children.

APPENDIX A

Table A-2-1 Evidence on user fees implementation and its impact on access (both for the poor and the general population)

Country	Study	Impact on access	Main finding (with further details in italics)
Benin	Soucat et al (1997)	Positive	Utilization of both preventive and curative care rose following user fees introduction, due to improved quality. Following implementation of the Bamako Initiative, which included introducing user fees, utilization increases were observed for both preventive and curative care, due to better quality care (especially greater drug availability).
Burkina Faso	Ridde (2003)	Negative	Utilization of curative care fell after user fees introduction. Primary-level health and welfare centers charging user fees recorded an average annual decrease of 15.4% in new consultations for curative care, as compared with a 30.5% annual increase for those not charging fees.
Burundi	Bate and Witter (2003)	Negative	Ineffective exemption mechanisms for user fees. No clear criteria for exemptions, with only a small fraction of the population benefiting (4% of sample had cards, with only half of these benefiting from cards).
Cambodia	Akashi et al (2004)	Positive	Utilization increased following user fees introduction, as they replaced informal payments. Before user fees, informal payments were used to boost salaries. After fees, revenues were retained by the hospital.
Cambodia	Barber et al (2004)	Positive	Utilization increased following user fees introduction, as they replaced informal payments. User fees guaranteed fixed prices for services, with utilization increasing by greater than 50% for inpatient and surgical care.
Cambodia	Jaccobs and price (2004)	Negative	User fees, whilst not adversely affecting overall utilization, did adversely affect the poor. Increases in user fees created a 'medical poverty trap', with some of the poor deterred from seeking care
Cameroon	Litvack et al (1993)	Positive	Utilization increased following user fees introduction, through improved quality. User fees ensured better quality of services through enhanced drug availability, with increases in utilization extending to the poor.

China	Liu and Mills (2002)	Negative	User fees, whilst improving public sector productivity, reduced take-up of preventive services. The increased reliance on user fees worsened allocative efficiency, with over-provision of unnecessary services and under-provision of socially desirable services.
Democratic Republic of Congo	Haddad and Fournier (1995)	Negative	Utilization fell after user fees introduction, despite improvements in quality. In 1987-91, service utilization fell by 40%, with 18-32% of this decrease is explained by cost, despite improvements in drug availability, staff stills and better medical equipment.
Ethiopia	Russell and Abdella (2002)	Negative	Ineffective exemption mechanisms for user fees. Exemption mechanisms limited
Ghana	Nyonator and Kutzin (1999)	Negative	Exemption mechanisms for user fees are largely non-functional. Fees have resulted in a 'sustainable inequity', allowing service provision to continue, but preventing part of the population from using these services, due to ineffective exemption mechanisms.
Guinea	Soucat et al (1997)	Positive	Utilization of both preventive and curative care rose following user fees introduction due to improved quality.
Kenya	Collins et al (1997)	Negative (Neutral)	Utilization fell after user fees introduction, although by much less after phased implementation. The initial 1989 registration fee led to an average reduction of 27% at provincial hospitals, 45% at district hospitals and 33% at health centers. In contrast, the outpatient treatment fee reintroduced in 1992 was associated with much smaller decreases in utilization.
	Mbugua et al	Negative	Utilization fell after user fees introduction, with exemption mechanism being ineffective attendance for outpatient and impatient care in government facilities was lower when registration fees were charged, as compared with when fees were removed. Utilization by children, exempt from fees, followed a similar pattern.
Mali	Mariko (2003)`	Positive (neutral)	Increases in user fees are likely to have only had a minor effect on utilization of services. Quantity of care is an important determinant of demand, with price increases only having a minor effect on utilization. These could be offset if policymakers improve both the structural and process quality of care.

Mauritania	Audibert and Mathonnat	Positive	Utilization increased following user fees introduction, through improved quality. Increases in utilization were observed following user fee introduction, due to better drug availability, with no evidence of severe negative equity effects.
Niger	Chawla and Ellis(2000)	Positive (neutral)	User fees only had a negligible negative impact on utilization of health care. No evidence of serious reductions in access following increases in formal user fee charges, due to improved quality of care.
Niger	Diop et al (1995)	Positive	Utilization increased following user fees introduction, especially when combined with an annual tax. Utilization increased markedly in district with small fee plus an annual tax, as compared with a pure fee-for-service method (negligible utilization impact) and control district without fees (utilization fell)
Niger	Meuwissen (2002)	Negative	Utilization fell after user fees introduction, following nationwide implementation. Although previous pilot studies had shown that user fees would not adversely affect access, due to improved quality, nationwide implementation led to more severe drops in utilization in a number of health centers.
Nigeria	Uzochukwu et al (2004)	Mixed	Utilization of malaria services increased following user fees introduction, although the rich and educated benefited the most. Utilization of malaria services increased despite the introuducton of user fees, due to improved quality (training of health workers and better drug availability), although the rich and educated were the principal beneficiaries.
Sierra Leone	Fabricant et al(1999)	Negative	The rural poor are disproportionately disadvantaged by fees, with exemption mechanisms ineffective. The burden of curative treatment costs came mainly from private and NGOS providers, with the rural poor facing a high financial burden.
Sudan	Abdu et al (2004)	N/A	Introduction of effective exemption mechanisms significantly increased utilization. Exemptions (financed by the government) from fees for all pregnant women and under-fives with malaria resulted in significant utilization increased for both population groups

Table A-2-2: Views in user fees

Donor	Current User Fee Policy
World Bank	No blanket policy, actual practice depends on how this is interpreted
Asian Development Bank	The Bank will address cost recovery on a project by project basis taking into account concerns about both equity and efficiency. The Bank's interest in improving PHC for the poor will be jeopardized if user charges discourage their use of such services. Thus while the Bank will consider user charges for PHC services, it will not insist on them unless there is some compelling, context specific reason for employing cost recovery. Nonetheless, the Bank will ensure that PHC services are efficient and cost effective.
WHO	See out of pocket expenditure as an inequitable and inefficient way of funding health care and promotes the use of prepayment (WHR 2000)
USAID	Pragmatic-no blanket approach. USAID emphasis is more on improving the quality of public services and on working with the private sector
GAVI	"In the absence of compelling country or regional data unequivocally documenting their value, user fees should not be levied in publicly financed national immunization services" GAVI Board
Oxfam Equinet	"User fees should not be imposed for either education or basic health services" Have called for primary health care fees to be removed. Not as a cure all measure but accompanied by actions that increase overall national recourses for public sector health services and that deal with international conditions and policies that undermine this.

Source: DFID health systems resource centre, 2004

Table A- 2-3: User Fee Collections in Selected Countries in sub-Saharan Africa

	% of recurrent budget covered by user fees	Year
Benin	20	1993
Botswana	2	1983
Burkina Faso	14.8	1999
Burundi	4	1992
Cote d'Ivoire	7.2	1993
Ethiopia	9	1996/7
Ghana	5-9	1991
Guinea	20	1993
Guinea-Bissau	5	1995
Kenya	2	1984
Lesotho	7	1998
Malawi	3.3	1983
Mali	2.7	1986
Mauritania	9	1999
Mozambique	8	1996
Rwanda	7	1984
Senegal	4	1990
Swaziland	2.1	1984
Zimbabwe	3.5	1992
Un-weighted Average	**6.9**	

Source: DFID Health Systems Resource Center, Mark Pearson (2004)

APPEDIX B: Model Summary

Iteration 0: log likelihood = -179.74861

Iteration 1: log likelihood = -141.34451

Iteration 2: log likelihood = -128.47157

Iteration 3: log likelihood = -125.49825

Iteration 4: log likelihood = -125.12733

Iteration 5: log likelihood = -124.95235

Iteration 6: log likelihood = -124.94306

Iteration 7: log likelihood = -124.94295

Multinomial logistic regression	Number of obs	= 218
	LR chi2(26)	= 109.61
	Prob > chi2	= 0.0000
Log likelihood = -124.94295	Pseudo R2	= 0.3049

The first iteration (called iteration 0) is the log likelihood of the "null" or "empty" model; that is, a model with no predictors. At the next iteration, the predictor(s) are included in the model. At each iteration, the log likelihood decreases because the goal is to minimize the log likelihood. When the difference between successive iterations is very small, the model is said to have "converged", the iterating stops, and the results are displayed.

Log Likelihood - This is the log likelihood of the fitted model. It is used in the Likelihood Ratio Chi-Square test of whether all predictors' regression coefficients in the model are simultaneously zero and in tests of nested models.

Number of obs - This is the number of observations used in the logistic regression. It may be less than the number of cases in the dataset if there are missing values for some variables in the equation. By default, Stata does a listwise deletion of incomplete cases.

LR chi2(26) - This is the Likelihood Ratio (LR) Chi-Square test that at least one of the predictors' regression coefficient is not equal to zero in the model. The number in the parenthesis indicates the degrees of freedom of the Chi-Square distribution used to test the LR Chi-Square statistic and is defined by the number of predictors in the model. The LR Chi-Square statistic can be calculated by

-2(L(null model) - L(fitted model))

= -2((-179.74861) - (-124.94295)) = 109.61

Where *L(null model)* is from the log likelihood with just the response variable in the model (Iteration 0) and *L(fitted model)* is the log likelihood from the final iteration (assuming the model converged) with all the parameters.

Prob > chi2 - This is the probability of getting a LR test statistic as extreme as, or more so, than the observed under the null hypothesis; the null hypothesis is that all of the regression coefficients in the model are equal to zero. In other words, this is the probability of obtaining this chi-square statistic (109.61) if there is in fact no effect of the predictor variables. This p-value is compared to a specified alpha level, our willingness to accept a type I error, which is typically set at 0.05 or 0.01. The small p-value from the LR test, <0.00001, would lead us to conclude that at least one of the regression coefficients in the model is not equal to zero. The parameter of the Chi-Square distribution used to test the null hypothesis is defined by the degrees of freedom in the model is chi2(26). The p value of the model is 0.0000 so we reject the hypothesis that all of the regression coefficients in the model are equal to zero.

Pseudo R2 - This is McFadden's pseudo R-squared. Logistic regression does not have an equivalent to the R-squared that is found in OLS regression. Most of there are a wide variety of pseudo R-squared statistics which can give contradictory conclusions. Because this statistic does not mean what R-squared means in OLS regression (the proportion of variance for the response variable explained by the predictors), interpreting this statistic needs caution. The pseudo R2 of this model is 0.31 which is good.

```
Multinomial logistic regression           Number of obs     =        218
```

		LR chi2(26)	= 109.61
		Prob > chi2	= 0.0000
Log likelihood = -124.94295		Pseudo R2	= 0.3049

type	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
2						
agey	-.0296008	.0130082	-2.28	0.023	-.0550964	-.0041053
sex	-.1710098	.3754588	-0.46	0.649	-.9068956	.5648759
relation	-.8971063	.5037444	-1.78	0.075	-1.884427	.0902145
duration	-.0591385	.0226849	-2.61	0.009	-.1036001	-.0146769
agehead	.0476216	.0172247	2.76	0.006	.0138619	.0813813
sexhh	.5598353	.3892106	1.44	0.150	-.2030034	1.322674
education	.2791707	.3696506	0.76	0.450	-.4453312	1.003673
lnwealth	.2534146	.1394189	1.82	0.069	-.0198415	.5266707
lncons	.6403171	.2916441	2.20	0.028	.0687053	1.211929
hhsize	.0289859	.0804804	0.36	0.719	-.1287528	.1867245
lnuserfee	-.6358471	.1598897	3.98	0.000	-.3224689	-.9492252
waitime	-.0051869	.0017683	-2.93	0.003	-.0086527	-.0017211
town	-.973421	.373591	-2.61	0.009	-1.705646	-.241196
_cons	-8.76784	1.855497	-4.73	0.000	-12.40455	-5.131134
3						
agey	-.0146989	.0401458	-0.37	0.714	-.093383	.0639854
sex	-1.67154	1.130067	-1.48	0.139	-3.88643	.5433503
relation	.3527381	1.229556	0.29	0.774	-2.057147	2.762623
duration	.0311547	.0522128	0.60	0.551	-.0711806	.13349
agehead	-.0617174	.0507567	-1.22	0.224	-.1611987	.0377639
sexhh	.3668034	.9297833	0.39	0.693	-1.455538	2.189145
education	.4258899	.9758174	0.44	0.663	-1.486677	2.338457
lnwealth	-1.233077	.4372237	-2.82	0.005	-2.09002	-.3761345
lncons	2.200525	.7979163	2.76	0.006	.636638	3.764413
hhsize	.4129624	.2597278	1.59	0.112	-.0960948	.9220195
lnuserfee	-1.237888	.6583551	-1.88	0.060	-2.528241	.0524641
waitime	.0037419	.0014659	2.55	0.011	.0008688	.0066149
town	1.947231	1.211985	1.61	0.108	-.4282164	4.322678
_cons	-6.147898	4.740092	-1.30	0.195	-15.43831	3.142512

(type==1 is the base outcome)

Multinomial logistic regression		Number of obs	= 218

				Wald chi2(26)	=	107.60
				Prob > chi2	=	0.0000
Log pseudolikelihood = -124.94295				Pseudo R2	=	0.3049

type	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf.	Interval]
2						
agey	-.0296008	.01063	-2.78	0.005	-.0504352	-.0087664
sex	-.1710098	.3888786	-0.44	0.660	-.9331978	.5911781
relation	-.8971063	.4551186	-1.97	0.049	-1.789122	-.0050904
duration	-.0591385	.0219285	-2.70	0.007	-.1021175	-.0161594
agehead	.0476216	.0161451	2.95	0.003	.0159778	.0792655
sexhh	.5598353	.3940827	1.42	0.155	-.2125525	1.332223
education	.2791707	.3779957	0.74	0.460	-.4616873	1.020029
lnwealth	.2534146	.1165304	2.17	0.030	.0250192	.48181
lncons	.6403171	.2936687	2.18	0.029	.064737	1.215897
hhsize	.0289859	.0835034	0.35	0.728	-.1346778	.1926496
lnuserfee	-.635847	.1653034	-3.85	0.000	-.3118584	-.9598357
waitime	-.0051869	.0017666	-2.94	0.003	-.0086494	-.0017244
town	-.973421	.3855481	-2.52	0.012	-1.729081	-.2177605
_cons	-8.76784	2.052116	-4.27	0.000	-12.78991	-4.745767
3						
agey	-.0146989	.0207989	-0.71	0.480	-.0554639	.0260662
sex	-1.67154	1.095718	-1.53	0.127	-3.819107	.4760272
relation	.3527381	.9064064	0.39	0.697	-1.423786	2.129262
duration	.0311547	.0517627	0.60	0.547	-.0702984	.1326078
agehead	-.0617174	.0358567	-1.72	0.085	-.1319952	.0085603
sexhh	.3668034	.8752862	0.42	0.675	-1.348726	2.082333
education	.4258899	.9722133	0.44	0.661	-1.479613	2.331393
lnwealth	-1.233077	.3079577	-4.00	0.000	-1.836663	-.6294913
lncons	2.200525	.717782	3.07	0.002	.7936984	3.607352
hhsize	.4129624	.2329346	1.77	0.076	-.0435811	.8695058
lnuserfee	-1.237888	.4551418	-2.72	0.007	-2.12995	-.3458266
waitime	.0037419	.000818	4.57	0.000	.0021385	.0053452
town	1.947231	.8589818	2.27	0.023	.2636576	3.630804
_cons	-6.147898	4.899076	-1.25	0.210	-15.74991	3.454115

(type==1 is the base outcome)

Multinomial logistic regression	Number of obs	=	218

				Wald chi2(26)	=	107.60
				Prob > chi2	=	0.0000
Log pseudolikelihood = -124.94295				Pseudo R2	=	0.3049

type	RRR	Robust Std. Err.	z	P>|z|	[95% Conf.	Interval]
2						
agey	.970833	.0103199	-2.78	0.005	.9508155	.9912719
sex	.8428133	.327752	-0.44	0.660	.393294	1.806115
relation	.4077478	.1855736	-1.97	0.049	.1671068	.9949226
duration	.9425762	.0206693	-2.70	0.007	.9029234	.9839704
agehead	1.048774	.0169326	2.95	0.003	1.016106	1.082492
sexhh	1.750384	.6897961	1.42	0.155	.8085179	3.789459
education	1.322033	.4997228	0.74	0.460	.6302194	2.773274
lnwealth	1.288417	.1501398	2.17	0.030	1.025335	1.619002
lncons	1.897082	.5571138	2.18	0.029	1.066878	3.373319
hhsize	1.02941	.0859593	0.35	0.728	.8739974	1.212458
lnuserfee	.5294868	.3121954	-3.85	0.000	.365961	.611267
waitime	.9948266	.0017575	-2.94	0.003	.9913879	.9982771
town	.3777884	.1456556	-2.52	0.012	.1774473	.804318
3						
agey	.9854086	.0204954	-0.71	0.480	.9460461	1.026409
sex	.1879574	.2059482	-1.53	0.127	.0219474	1.609667
relation	1.422958	1.289779	0.39	0.697	.2408007	8.408658
duration	1.031645	.0534008	0.60	0.547	.9321156	1.141802
agehead	.9401485	.0337106	-1.72	0.085	.8763452	1.008597
sexhh	1.443114	1.263138	0.42	0.675	.2595708	8.023164
education	1.530952	1.488412	0.44	0.661	.2277258	10.29227
lnwealth	.2913945	.0897372	-4.00	0.000	.1593482	.5328628
lncons	9.029756	6.481397	3.07	0.002	2.211561	36.86831
hhsize	1.511288	.3520313	1.77	0.076	.9573549	2.385732
lnuserfee	.289996	.1319893	-2.72	0.007	.1188433	.7076352
waitime	1.003749	.0008211	4.57	0.000	1.002141	1.005359
town	7.009252	6.02082	2.27	0.023	1.301682	37.74316

(type==1 is the base outcome)

Marginal effects after mlogit
y = Pr(type==1) (predict, p outcome (1))
= .6490269

variable	dy/dx	Std. Err.	z	P>|z|	[95% C.I.]	X
agey	.0067196	.00296	2.27	0.023	.000923	.012516
36.289						
sex*	.0411631	.08449	0.49	0.626	-.124426	.206753
.440367						
relation*	.1896248	.09938	1.91	0.056	-.00516	.38441
.321101						
duration	.0133306	.00509	2.62	0.009	.003351	.02331
11.3945						
agehead	-.0106775	.00391	-2.73	0.006	-.018345	-.00301
51.9495						
sexhh*	-.1249597	.08472	-1.47	0.140	-.291012	.041092
.577982						
educat~n*	-.0641792	.08437	-0.76	0.447	-.229547	.101189
.417431						
lnwealth	-.0554108	.03155	-1.76	0.079	-.117244	.006422
7.79191						
lncons	-.148288	.06656	-2.23	0.026	-.278745	-.017831
6.39178						
hhsize	-.0072007	.01826	-0.39	0.693	-.042983	.028582
6.14679						
lnuser~e	.1419224	.03549	4.00	0.000	.211489	.072356
3.55404						
waitime	.0011676	.00039	3.02	0.003	.00041	.001925
113.789						
town*	.2190034	.08376	2.61	0.009	.054845	.383162
.587156						

(*) dy/dx is for discrete change of dummy variable from 0 to 1

Marginal effects after mlogit
y = Pr(type==2) (predict, p outcome (2))
= .3485738

variable	dy/dx	Std. Err.	z	P>|z|	[95% C.I.]	X
agey	-.0067092	.00296	-2.27	0.024	-.012515	-.000904
36.289						
sex*	-.0372732	.08459	-0.44	0.659	-.203061	.128514
.440367						
relation*	-.1913273	.09938	-1.93	0.054	-.386114	.003459
.321101						
duration	-.0134546	.0051	-2.64	0.008	-.023458	-.003452
11.3945						
agehead	.0108651	.00391	2.78	0.005	.003198	.018532
51.9495						
sexhh*	.1245468	.08481	1.47	0.142	-.041673	.290766
.577982						
educat~n*	.0633738	.0845	0.75	0.453	-.102242	.228989
.417431						

lnwealth	.0585741	.03149	1.86	0.063	-.003155	.120303
	7.79191					
lncons	.1435565	.06642	2.16	0.031	.013383	.27373
	6.39178					
hhsize	.0062364	.01825	0.34	0.733	-.029539	.042012
	6.14679					
lnuser~e	-.1454171	.03546	-4.10	0.000	-.075917	-.214917
	3.55404					
waitime	-.0011809	.00039	-3.05	0.002	-.001941	-.000421
	113.789					
town*	-.2244392	.08363	-2.68	0.007	-.388345	-.060534
	.587156					

(*) dy/dx is for discrete change of dummy variable from 0 to 1

Marginal effects after mlogit
y = Pr(type==3) (predict, p outcome (3))
= .0023993

variable	dy/dx	Std. Err.	z	P>|z|	[95% C.I.]	X
agey	-.0000104	.0001	-0.11	0.914	-.0002	.000179
	36.289					
sex*	-.0038899	.00506	-0.77	0.442	-.013815	.006035
	.440367					
relation*	.0017025	.0044	0.39	0.699	-.006913	.010318
	.321101					
duration	.000124	.00019	0.65	0.515	-.00025	.000498
	11.3945					
agehead	-.0001876	.00023	-0.81	0.418	-.000642	.000267
	51.9495					
sexhh*	.000413	.0023	0.18	0.858	-.0041	.004926
	.577982					
educat~n*	.0008053	.00259	0.31	0.756	-.004267	.005878
	.417431					
lnwealth	-.0031634	.00403	-0.78	0.433	-.011065	.004738
	7.79191					
lncons	.0047315	.00615	0.77	0.442	-.00732	.016783
	6.39178					
hhsize	.0009642	.00114	0.84	0.400	-.00128	.003208
	6.14679					
lnuser~e	-.0034947	.00421	-0.83	0.407	-.01175	.004761
	3.55404					
waitime	.0000133	.00002	0.72	0.469	-.000023	.000049
	113.789					
town*	.0054358	.0069	0.79	0.431	-.008087	.018958
	.587156					

(*) dy/dx is for discrete change of dummy variable from 0 to 1

Test of multicollinearity

	agey	sex	relation	duration	agehead	sexhh	education	lnwealth
agey	1.0000							
sex	-0.0322	1.0000						
relation	-0.6304	0.1618	1.0000					
duration	0.1437	-0.0674	-0.0668	1.0000				
agehead	0.4758	0.0394	-0.1324	0.0072	1.0000			
sexhh	-0.0140	0.3464	0.0903	-0.0406	0.0205	1.0000		
education	-0.1232	0.0923	0.0554	-0.1423	-0.1991	0.2336	1.0000	
lnwealth	0.0350	0.0570	0.0687	-0.1087	0.0569	0.1318	0.1726	1.0000
lncons	0.0510	-0.0085	0.0921	-0.1070	0.0411	0.1311	0.0617	0.5560
hhsize	-0.1196	0.0035	0.1640	-0.0616	0.1149	0.1502	0.0768	0.2048
lnuserfee	0.0756	0.0369	0.0032	0.0666	-0.0158	0.0591	-0.0069	0.1660
waitime	0.0787	-0.0519	-0.0165	0.2177	0.0414	-0.0556	-0.0321	-0.0837
town	-0.0170	0.0119	-0.0020	0.0513	-0.0120	-0.0751	0.0107	0.1621

	lncons	hhsize	lnuser~e	waitime	town
lncons	1.0000				
hhsize	0.2317	1.0000			
lnuserfee	0.2887	-0.0740	1.0000		
waitime	-0.1366	-0.0535	0.0398	1.0000	
town	0.1026	0.0987	0.0787	-0.0638	1.0000

. hausman hpartial hall, alleqs constant

Note: the rank of the differenced variance matrix (13) does not equal the number of coefficients being tested (14); be sure this is what you expect, or there may be problems computing the test. Examine the output of your estimators for anything unexpected and possibly consider scaling your variables so that the coefficients are on a similar scale.

	---- Coefficients ----			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	hpartial	hall	Difference	S.E.
agey	-.0101144	-.0146989	.0045845	.0106513
sex	-2.156935	-1.67154	-.4853951	.7053241
relation	-.0152521	.3527381	-.3679902	.6475589

duration	.0355833	.0311547	.0044286	.0198209
agehead	-.0452539	-.0617174	.0164636	.016228
sexhh	1.030004	.3668034	.6632008	.5784332
education	.4544956	.4258899	.0286058	.2593917
lnwealth	-1.43579	-1.233077	-.2027129	.2570391
lncons	3.075654	2.200525	.8751287	.904316
hhsize	.4324733	.4129624	.019511	.0779122
lnuserfee	-1.600431	-1.237888	-.3625423	.5967021
waitime	.0043721	.0037419	.0006303	.0010161
town	2.073652	1.947231	.1264213	.3112802
_cons	-10.86859	-6.147898	-4.720691	4.118562

b = consistent under Ho and Ha; obtained from mlogit
B = inconsistent under Ha, efficient under Ho; obtained from mlogit

Test: Ho: difference in coefficients not systematic

chi2(13) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 0.53
Prob>chi2 = 1.0000
(V_b-V_B is not positive definite)

. hausman hpartial hall, alleqs constant

Note: the rank of the differenced variance matrix (0) does not equal the number of coefficients being tested (14); be sure this is what you expect, or there may be problems computing the test. Examine the output of your estimators for anything unexpected and possibly consider scaling your variables so that the coefficients are on a similar scale.

	---- Coefficients ----			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	hpartial	hall	Difference	S.E.

```
      agey    -.0278449    -.0278449            0            0
       sex     -.162012     -.162012            0            0
  relation     -.782503     -.782503            0            0
  duration     -.059263     -.059263            0            0
   agehead     .0465259     .0465259            0            0
     sexhh     .5236989     .5236989            0            0
 education     .2668098     .2668098            0            0
  lnwealth     .2533443     .2533443            0            0
    lncons     .5684554     .5684554            0            0
    hhsize     .0392361     .0392361            0            0
 lnuserfee     .6465513     .6465513            0            0
   waitime    -.0051841    -.0051841            0            0
      town    -.9519043    -.9519043            0            0
     _cons    -8.444052    -8.444052            0            0
------------------------------------------------------------------------------
                    b  = consistent under Ho and Ha; obtained from
mlogit
        B = inconsistent under Ha, efficient under Ho; obtained from
mlogit

Test:  Ho:  difference in coefficients not systematic

              chi2(0) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                      =        0.00
            Prob>chi2 =           .
            (V_b-V_B is not positive definite)

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