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UNIVERSITY OF CAPE TOWN

**Faculty of Commerce**

**Demand for Health Care Services in the Urban Areas  
of Zimbabwe: a case study of the Harare city.**

**By**

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**A Dissertation submitted to the School of Economics  
University of Cape Town, in partial fulfillment of the  
requirements for the award of a Master of Commerce  
Degree in Economics.**

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## Abstract

The study attempts to evaluate the impact of the health sector deregulation policy on the choice of health care providers 12 years after its implementation. It gives some insights into the pattern of health care choices in Harare, the capital city of Zimbabwe with the aim of drawing some conclusions about the urban areas of Zimbabwe. The other objective is to highlight the impact of personal characteristics and factors related to the facility on the choice between public and private health care providers. Some coping mechanisms being used by urban dwellers in dealing with illness are also investigated. Micro data was gathered by administering a questionnaire to randomly selected individuals who experienced some illness or injury during the reference period. For empirical estimation, logistic regression was used.

The results of the study show that the urban poor rely heavily on public health care providers, informal forms of care, and they have limited access to private sector facilities. Although the deregulation policy managed to bring in new players in the health sector, the amount of competition was not enough to lower the cost of health care because the cost of drugs and consultation fees continued to soar. The major factors found to influence health care choices are gender, net monthly income, education, occupation, and availability of essential drugs, fees and the cost of drugs. The results of the study show a clear message that deregulation of the health sector did manage to increase the size of the private sector but failed to widen the scope of provider choices especially for the poorer urban residents.

## Abbreviations/Acronyms

AIDS	Acquired Immune Deficiency Syndrome
ESAP	Economic and Structural Adjustment Programme
GOZ	Government of Zimbabwe
HIV	Human Immune -deficiency Virus
MOF	Ministry of Finance
IOM's	(Institute of Medicine's) Council
IMF	International Monetary Fund
MERP	Millennium Economic Recovery Programme
MoHCW	Ministry of Health and Child Welfare
NGOs	Non-Governmental Organisations
OPD	Out Patients Department
PSC	Public Service Commission
RHC	Rural Health Center
SDF	Social Dimension Fund
SHI	Social Health Insurance
SIDA	Swedish International Development Agency
WB	World Bank
WHO	World Health Organisation
ZIMPREST	Zimbabwe Programme for Economic and Social Transformation

# **1 PURPOSE AND SCOPE**

## **1.1 Introduction**

Implementation of the Economic Structural Adjustment Programme (ESAP) in 1990 required reforming the health sector. One of the policies involved deregulating the health sector. The objectives of the deregulation exercise were to increase the role of the private sector in health care provision and financing and to encourage competition in the health sector that was formerly dominated by the public sector. The deregulation process involved removal of barriers to entry into the health sector and allowed private investment in the sector. This resulted in general practitioners being allowed to do private practice in addition to public practice.

Increasing the number of players in the health sector was expected to increase the scope of choice for consumers of health care. The quality of health care was also expected to improve, as consumers would avoid providers with poor quality of care in both the private and the public sector. Moreover, an increase in the number of health care providers was expected to drive prices down through price competition among health care providers.

The theory of demand has been used to model health seeking behaviour of patients for in various studies and this study makes use of micro data to understand the pattern of health care choices among various socio-economic groups in urban areas of Zimbabwe. In addition, the study attempts to assess if deregulation of the health sector resulted in equitable access to both private and public health care.

## **1.2 Statement of the problem**

This study seeks to assess the impact of the deregulation policy on the scope of health care options available to patients 12 years after implementation of the policy. Apart from curbing cost escalation, equitable access to health care was expected to improve for all the socio-economic groups. The question to be addressed by the study is whether deregulation was enough to ensure access to a wider scope of providers and how an individual's characteristics and facilities related factors can impact on the choice of health care provider.

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A number of studies have been carried out on demand for health care and choice analysis in Africa. Examples include studies by Mwabu GM (1989, 1986) on health care seeking behaviour of patients in Kenya and Akin et al. (1995) on demand for health care in Nigeria. However, no such study has been carried out in Zimbabwe hence this study is aimed at bridging this information gap.

### **1.3 Rationale of the study**

The study makes use of the existing theory of demand for health care to give insights into the nature of individual choices of health care providers in the urban areas of Zimbabwe. It is hoped that the study will give an insight into the factors that constrain the individual choices of health care providers.

The question to be answered is to what degree public and private health care facilities reflect choices that can be exercised by the majority of the urban residents, especially the vulnerable groups like the poorest households, the unemployed and the low income earners in urban areas? The study intends to shed light on the coping strategies used by patients given the socio-economic problems being faced by Zimbabweans.

The prevailing situation is characterised by,

- shortages of essential drugs.
- user fees at public facilities.
- shortages of skilled staff due to exodus of personnel to other countries.
- high cost of drugs and consultation fees at private clinics and hospitals.
- high prevalence of HIV/AIDS and related diseases, which have increased the need for health care services.

It is hoped that making use of micro data specifically generated for a health study, the impact of the deregulation policy on health care choices can be fully understood and some context specific recommendations can be made. The results of this study are going to be useful to policy makers in health policy making by drawing inferences on other urban areas. Public and private health care providers will get information on how quality of health care affects the utilisation of health care services.

#### **1.4 Objectives of the study**

The specific objectives of the study are to,

- To describe the pattern of individual choices of sources of health care.
- To estimate the causal-effect relationship between choices of health care providers, provider specific attributes demographic and socio-economic characteristics of individuals.
- To explore the implications for health policy.

University of Cape Town

## **2 A SITUATION ANALYSIS**

### **2.1 Introduction**

This chapter gives a brief overview on the Zimbabwean background, specifically the impact of broader macroeconomic reforms on the health sector. The general structure of the public health sector is also discussed in Section 2.4.3 followed by an overview of the health care policies on human resources, user fees, equity in health and quality assurance presented in Section 2.5. Lastly, Section 2.6 gives a summary of the major problems that are facing the health care system.

### **2.2 General information on Zimbabwe**

The Republic of Zimbabwe (formerly Rhodesia) is a former British colony which gained independency from Britain in April 1980. The country is located in Southern Africa and shares borders with Botswana, Zambia, South Africa and Mozambique. The country has ten provinces in total and two of these provinces are Harare, the capital city and Bulawayo, the second largest city. All the administrative functions of the government and the parliament are located in Harare.

Zimbabwe is a landlocked country with a land area of 386,670 square kilometres and the main economic activity is agriculture. The country is heavily dependent on the export of primary products especially agricultural products for export earnings. The UNDP (2003) indicators show that Zimbabwe's primary exports constituted 72% of merchandise exports in the year 2001 while manufactured exports constituted the remaining 28%.

### **2.3 Demographic profile.**

Zimbabwe has a population of 11.6 million people according to the preliminary results from the census held in August 2002. According to the UNDP (2003), 36.0% of this population resides in the urban areas and the percentage is projected to reach 45.9% in the year 2015. The remaining 64% of the population lives in the rural areas of Zimbabwe. The annual population growth rate is for the period 2000 – 2015 is expected to be 0.2%, down from 2.8% for the period 1975 – 2000 mainly due to low life expectancy as a result of the HIV/AIDS pandemic and increasing poverty.

Zimbabwe is one of the countries that are worst affected by the HIV/AIDS pandemic. About 33.7% of people between the age of 15 and 49 years were living with HIV/AIDS in the year 2001 in Zimbabwe. Life expectancy at birth (years) was 35.4 for the same period (UNDP 2003).

## **2.4 Macroeconomic reforms and the health sector.**

The Government of Zimbabwe (GOZ) in 1990 embarked on restructuring the economy through the ESAP, a reform package that was financed and designed by the International Monetary Fund (IMF) and the World Bank (WB). The goal of ESAP with regards to fiscal operations was to reduce government expenditure through the removal of subsidies, cost recovery, civil service rationalisation and parastatal reform (Dhliwayo 2001). This resulted in the removal of subsidies on basic commodities in the two key sectors of the economy, health and education. User fees were introduced in the two sectors as a cost recovery measure and to improve the quality of services in these sectors.

### **2.4.1 Evaluation of the ESAP programme**

The ESAP objectives of increasing economic growth, reduction of unemployment and price stabilisation were not realised. Reports by the World Bank (1999) show that economic growth in Zimbabwe has been on the downturn since the ESAP period. The country has experienced negative growth rate figures. For the year 1999 the growth rate was 2, 7%, down to -4.9 % in 2000 and to -8, 4% in 2001.

Health care expenditure also started to decline during the ESAP period. According to the report by the Commission of Review into the Health Sector (1999), health care expenditure increased steadily during the first decade after the 1980 independence to reach 3.1% of GDP and 6.2% of total government expenditure in 1990/1991 (US\$23.6 per capita). This trend reversed since the ESAP period, reaching only 4.2% of GDP and 2.2% of total government expenditure in 1995/1996.

Price stability has not been achieved and the health sector was badly hit by price increases. The economy has registered its highest inflation figure of 360 percent.

Table 1 below shows three price indices; the consumer price index (CPI), medicare index and education index for the year 1990 through 2000. From the table, it can be deduced that the medicare price index rose by 2106.3 percent while the CPI rose by only 1473.6 percent between the period 1990 and 2000. The cost of education increased by 857.2 percent. Health care costs increased by a higher percentage compared to average prices. This was a result of foreign currency shortages which increased the cost of importing drugs and medical equipment. Unregulated prices in the private health sector are also responsible for the inflationary situation in the health sector.

**Table 1: Consumer, Medicare and Education price indices, 1990-2000**

year	Consumer price index	Medicare price index	Education price index
1990	100.0	100.0	100.0
1991	123.3	116.3	127.6
1992	175.2	144.4	191.6
1993	223.6	169.3	211.4
1994	273.4	419.9	229.1
1995	335.1	496.0	258.5
1996	406.9	632.9	295.7
1997	483.6	734.0	392.3
1998	636.9	818.7	508.3
1999	1,009.6	1,107.7	678.0
2000	1,573.6	2,206.3	957.2

Adapted from Dhliwayo (2001)

#### **2.4.2 Recent economic reform programmes.**

The Zimbabwe Programme for Economic and Social Transformation (ZIMPREST) was implemented for the period 1996-2000 as a successor of ESAP. ZIMPREST had the same macroeconomic policies and objectives as ESAP but focused more on indigenisation of the economy, land reform and social dimensions through the Social Welfare Programme. The Social Welfare Programme involved subsidies for food, health and education targeted at the disadvantaged groups i.e. the unemployed, the aged as well as the urban and rural poor.

After ZIMPREST the government proposed another economic reform programme called Millennium Economic Recovery Programme (MERP) in the year 2000 to achieve macroeconomic stability in the country. The focus of this economic recovery programme was on privatisation, employment creation and debt reduction strategies. The programme was dubbed 'making everyone really poor' by the public. The MERP was not officially implemented mainly because there was lack of political commitment to the programme.

### **2.4.3 Organisation of the public health sector**

The public health sector is organised as a referral chain with four tiers described below.

Primary health care facilities form the base of the health care delivery chain. They include facilities like Rural Health Centres (RHCs) and clinics. The first level in the referral chain is the District Hospital which handles case referred from primary health care facilities. The main thrust of the Ministry of Health and Child Welfare (MoHCW) policy was to build infrastructure at this level throughout the country and much has been done in terms of constructing district hospitals and RHCs.

The second referral level is the Provincial Hospital situated in most urban areas. Provincial Hospitals function as referral centres for all district hospitals in the province. The Central Hospitals form the third referral level, which offers specialised health care. Ideally they should act as referral centres for all provincial hospitals in the country. The country has a total of four central hospitals which are, Parirenyatwa and Harare central hospitals in Harare, Mpilo and United Bulawayo Hospitals (UBH) in Bulawayo.

However the referral chain does not work as smoothly as it should. There are a number of breaks in the chain; for example, there are no district hospitals in the urban areas. Most patients at central hospitals, about 75 % according to the Commission of Review into the Health Sector (1999) are self-referred and are from all hospitals in the country. The workload has dramatically increased at this level and the quality of health care has gone down.

At the district level, staff constraints delayed the opening of some of the new district hospitals therefore breaking the chain. In urban areas provincial hospitals have been used as first referral centres leading to congestion at the facilities. Appropriate infrastructure is often lacking at this level and the workload is usually unrealistically high.

#### **2.4.4 Private financing and provision of health care**

The private sector in Zimbabwe is involved in both the provision and financing of health care. Private providers include private hospitals, private surgeries, pharmacies, ambulance services, traditional practitioners and natural therapists. Alongside the private-for-profit health care facilities, there are mission hospitals and clinics owned by mining and industrial companies. About 40% of registered medical practitioners work full time in these private practices.

Private financiers play a significant role in Zimbabwe. The Commission of Review into the Health Sector (1999) identified that 50 % the total national health expenditure is private spending by approximately 30 medical aid societies (with a membership of approximately 1 million i.e. approximately 10 % of the total population.) and individual cash payments.

#### **Deregulation of the private sector.**

In 1993, it was estimated that about 92% of health services in Zimbabwe were provided by government health institutions, 5 % by mission hospitals and Non-governmental organisations (NGOs) and the remainder by for-profit organisations (Hongoro and Kumaranayake 2000). Deregulation of the private health sector in Zimbabwe was a deliberate policy action and was part of the broader health sector reform process in 1990. It was implemented through privatisation. According to Kumaranayake (1998) privatisation involves the increased role of non-governmental actors in the provision and financing of health care services.

Privatisation of the health sector was done in Zimbabwe mainly because of poor performance in the public sector and resource constraints that crippled public health care provision. It encouraged private investment i.e. allowed for-profit providers to invest in the health sector. This was accompanied by relaxations in the Public Service Commission (PSC) regulations to allow government employed doctors to do part-time private practice and nurses to open clinics and nursing homes (Commission of Review into the Health Sector 1999).

According to Chirove (1996), the rationale for the deregulation exercise was to,

- ensure the participation of the private sector as a significant partner in health delivery, provision and financing.
- reduce the pressure on public services and increase the range of options available to patients.

This resulted in the explosion of smaller private health care facilities like general practitioners (GPs) surgeries, private nursing homes, private pharmacies and large private hospitals like the Suburban Medical Center. Unregistered practices also mushroomed in most of the low-income suburbs.

Deregulation often results in undesirable practices for example, misuse of public resources within the private sector, low standards of care, medical malpractice and negligence. Increasing inequities in the provision of health care and cost escalation due to overcharging and use of unnecessary high technology have also been associated with increasing private sector activities (Kumaranayake 1998). Hongoro and Kumaranayake (2000) identified various opportunistic activities by private sector providers in Zimbabwe which included self-referral (where patients are sent to other services the provider has a financial interest in), over-servicing, doctor-patient collusion to collect health insurance payments and the use of unlicensed staff in private facilities.

## **2.5 Overview of the health policy in Zimbabwe**

### **2.5.1 User fees policy**

In 1991 the Government of Zimbabwe (GOZ) introduced user fees for health services following the advice given by the World Bank. The aim was to increase cost recovery for the ailing public health sector. There was an exemption plan which would exclude the poor from paying for public health care services. The criteria involved providing free care to the all unemployed people and those with earnings below Z\$150.00 at that time. The exemption process was poorly implemented which resulted in the target group not accessing free health care.

In 1993 the GOZ removed user fees at rural health facilities to caution the rural population from the effects of the 1992/93 drought. According to an evaluation study by the World Bank (1999) the user fees policy had limited success in mobilising additional resources for health, improving quality and efficiency as well as protecting the poor. A survey by the World Bank (1999) showed that 40% of the urban poor gave 'too expensive' as the reason for not seeking treatment when ill.

### **2.5.2 Human resources policy**

The establishment of posts, definition of salary scales, allowances and promotion of staff in the public health care system is not the responsibility of the Ministry of Health and Child Welfare (MoHCW) (Commission of Review into the Health Sector 1999). These functions are controlled by the Public Service Commission (PSC) and Ministry of Finance (MOF). As a result it is difficult for the MoHCW to establish and implement human resources policies. Although the health sector workforce was excluded from retrenchment during the ESAP, the sector is still facing a critical shortage of trained staff. The major reason is that health staff has been discontent about salaries and working conditions and the MoHCW has not been able to address these issues. As a result there are frequent strikes and mass exodus of staff from public sector to the private sector and other countries.

### **2.5.3 Equity in health**

At independence in 1980, the Government of Zimbabwe (GOZ) inherited a health care system with a wide disparity in health between the black and white races and between the rural and urban population. The policy of “Equity in Health” was adopted to reduce these disparities. The public health care system in the rural areas was expanded as a result of the “Equity in Health” policy by the government which promoted the construction of district hospitals and rural clinics to ensure geographical access (Commission of Review into the Health Sector 1999). However most of these hospitals are not fully functional because of chronic shortages of qualified staff, medical equipment and drugs and medicines.

### **2.5.4 Quality assurance in the public health sector**

According to the Commission of Review of the Health Sector (1999), quality refers to compliance with defined standard performance and is thus relevant at all levels of health care. There is no central coordinating system for quality assurance in Zimbabwe. Development of health services in Zimbabwe has been concerned with the quantity while quality issues have been left to individual professionals and professional associations. This arrangement is not suitable to deal with the deteriorating quality of care in the public sector health care system.

## **2.6 Problems faced by the health sector in Zimbabwe**

In summary, the main problems facing the health sector at the moment include declining real government expenditure on health care, shortages of essential drugs and medicines, dilapidating physical infrastructure and runaway inflation in the health sector. Personnel problems are also at their toll as trained health professionals are leaving the country in search of greener pastures. In the year 2002 there were 14 physicians per 100 000 people in Zimbabwe (UNDP 2003). Those who remain behind are overworked and the frequency of strikes has been increasing over the years.

## **3 REVIEW OF LITERATURE**

### **3.1 Introduction**

This chapter presents literature on issues surrounding the theory of demand, the distinction of demand for health and health care, characteristics of the health care market and issues on equity and inequality in health. Moreover, there is a discussion on the relationship between access, utilisation and demand for health. Quality of health care is defined and its different measures are summarised in Section 3.7. The theoretical foundation of the Grossman model follows in Section 3.8. The chapter wraps up with a discussion some empirical studies on demand for health care and some findings from the literature.

### **3.2 The theory of demand**

In economic terms demand is defined as the willingness and ability to pay for a given commodity. It relates the quantity of a commodity purchased at a given price. The theory of demand is based on the underlying consumer behaviour. Consumers seek to maximise utility from the consumption of a goods and services they purchase from the market. They are assumed to be rational economic agents who make consistent choices and from these choices a utility function can be defined (Varian 1992). Consumers of market commodities are assumed to maximise their utility subject to given budget constraints.

### **3.3 Health and health care**

These two terms are often used interchangeably but they have different meanings. The narrowest definition of health is a measure of the state of well-being of bodily organs. In contrast, the WHO (1948) definition of health is ‘a state of physical, mental and social well-being and not merely the absence of disease or infirmity’. This state of health can be influenced by a number of factors including health care. Other factors which affect health include poverty, education, levels of food intake, access to clean water sanitation and housing (Green 1992).

The other distinction between health and health care is that health has value in use and no value in exchange, i.e. health is not tradable and hence there is no market for health. In contrast health care is tradable or exchangeable and has a market. This means that it can be demanded, supplied and distributed. These two concepts are often difficult to operationalise. However, the definition of health care can be used in an attempt to understand consumer behaviour in terms of their health care choices and policy implications can be drawn, which is the focus of this study.

### **3.4 Characteristics of the health care market**

There are some special features of the health care market which makes the conventional demand theory to be applied with special attention. Firstly, health care is not a homogenous commodity and is poorly substitutable across broad categories of consumers. As an example, a patient suffering from malaria requires different treatment from a patient with a heart condition. Moreover, health care is difficult to store and is produced on demand.

Secondly, there is lack of knowledge on the part of the consumer. The consumer of health care often does not have much knowledge on his/her health status, appropriate health care and the associated health care costs. The health care provider often has all this information. Because of this information asymmetry, the doctor-patient relationship is often modeled within the theory of agency, with some consideration of the associated incentive problems (Mooney and Ryan 1993).

This principal agent relationship can result in supplier –induced demand. This means that the agent (provider) pursues other objectives that are not in the principals' interest. It has been generally agreed that the asymmetry of information in health care creates an incentive problem, resulting in more or less treatment being 'demanded' than would have been the case if the consumer had full information and knowledge (Rice 1984).

The other problem facing consumers of health care is uncertainty about timing of illness, effectiveness of care and consequences of different health care choices. Perfect markets do not exist in the health care sector. The poor state of health and lack of information limits the ability of consumers to make rational choices compared to consumers of other goods and commodities, hence they have bounded rationality. However these anomalies do not imply that the theory of demand is of no use in the analysis of health care demand.

### **3.5 Equity in health and health care**

Equity has been defined in various ways and the most common idea in most equity definitions that certain health differences are unfair or unjust. According to Braveman and Gruskin (2003), for the purposes of measurement and operationalisation,

“Equity in health is the absence of systematic disparities in health (or in major social determinants of health) between groups with different levels of underlying social advantage/disadvantage -that is, wealth, power, or prestige”.

The authors argue that their proposed definition supports the operationalisation of the highest attainable standard of health as indicated by the health status of the most socially disadvantaged group.

The International Society for Equity in Health (ISEqH) defined equity in health as,

“The absence of systematic and potentially remediable differences in one or more aspect of health across populations or population subgroups defined socially, economically demographically or geographically” (Macinko and Starfeld 2002)

Majority of the published literature on equity in health has focused on access, utilisation and financing of health services. Considerations in health policy have focused mainly on horizontal equity (the equal treatment of equals) and overlooked vertical equity which refers to unequal but fair treatment of unequals (Mooney and

Jan 1997). For this study equity in access to health care services across socio-economic groups is considered since the aim is to investigate whether health care services are of high quality and accessible to all.

Most governments' health policy strives to achieve equity in health care instead of equity in health mainly because health is influenced by many other factors besides health care which are outside the domain of policy makers for example, health damaging lifestyles and biological variations between individuals. Equity in health care is therefore not a viable option as the definition of 'good' health is not exactly known.

### **3.6 The relationship between access, utilisation and demand for health care**

With regards to health care, demand is not a function of price only, but access to health care plays an important role. Mooney (1983) defined equal access as equal costs to patients. Access is about opportunity. Barriers to equal access can be geographical in terms of distance traveled to the facility communication services, waiting time for appointments and treatment, information on ill health and effectiveness of health services and the cost of health care services. Access is therefore a function of the supply of health services.

On the other hand, utilisation is a function of both demand and supply of health care services. An individual's utilisation of health care services will not only depend on access to the services but also on his perception of the benefits of health care. Since individuals differ in their perceptions about the benefits from health care, even if they have equal access, it does not follow that they will have equal utilisation.

Mooney (1983) argued that if the supply side has been organised in such a way that there is equality of access for equal need, but not equality of utilisation for equal need, this means that the only remaining variable creating inequality is demand. Behind the concept of demand lies that of satisfaction for the patient or consumer of health care. The greater the utility the patient expects to gain from health services, the greater the amount he is willing to pay for them.

### 3.7 Definition and measures of quality of health care

The Institute of Medicine's Council (IOMs) (1990) defined quality of care as the degree to which health services for individuals and populations increase the likelihood of desired outcomes and are consistent with current professional knowledge. This definition has been widely accepted and has proven to be a robust and useful reference in the formulation of practical approaches to quality assessment and improvement.

In the definition above, the term *health services* refers to a wide array of services that affect health, including those for physical and mental illnesses. Furthermore, the definition applies to many types of health care practitioners (physicians, nurses, and various other health professionals) and to all settings of care (from hospitals and nursing homes to physicians' offices, community sites, and even private homes).

The emphasis is on the notion that high-quality care increases the *likelihood* of good outcomes and that quality is not identical to good outcomes. Poor outcomes occur despite the best possible health care because disease often defeats the best efforts of health care professionals. Determining what is good or poor quality of care requires knowledge of the values that individuals place on various health outcomes and how these may differ among individuals (Donaldson and Nolan 1997)

The three basic measures of quality of care outlined by Donaldson and Nolan (1997) are structural, process and outcome measures.

- Structural measures of quality typically include the characteristics of the resources in the health care system, including individual practitioners, groups of practitioners, organizations and systems of care, geographic location, and accessibility of services. They are measures of the presumed capacity of the practitioner or provider to deliver quality health care for example the type of training and licensure of practitioners. The training of the workforce and its availability for patient care determine whether quality of care is adequate. For facilities, they include government certification and private accreditation and physical attributes

- The process measure of quality-of care focuses on *performance measurement*, which is the current terminology related to measuring the process of care. In terms of clinical quality, such measurement often focuses on the diagnosis and management of disease and screening for disease. Interpersonal aspects of care, service timeliness and convenience are often included in this definition. In addition, technical aspects like accuracy of diagnosis, and appropriateness of therapy are often considered.
- Health outcomes measures include the traditional measures of survival (now commonly expressed as *risk-adjusted mortality*), unintended effects of treatment (e.g., infection), and the relief of symptoms. Patient's satisfaction based on their reports about their health after treatment is often used. Outcomes measurement is in some ways the ultimate form of quality measurement because what interests most people is whether care has improved the patient's health.

### **3.8 Grossman's human capital approach to the demand for health**

Grossman (1972) proposed a human capital approach to the determination of the demand for health and health care. His model is based on the notion that individuals invest in themselves and health is one form of human capital. Grossman highlighted two reasons for an individual's demand health. Firstly, health is demanded as an investment commodity because increases in human capital are assumed to raise an individual's productivity in the market sector of the economy, where he produces money earnings. Secondly, health is demanded as a consumption commodity in the non- market sector where it enters directly into an individual's preference/utility functions (for sick days are a source of disutility). The cost of these investments is made up of outlays on market goods and the opportunity cost of an individual's time.

According to Grossman (1972) what consumers demand when they purchase medical services are not these services per se, but rather, 'good health'. In his approach, consumers produce commodities with inputs of market goods and their own time and health care is one of the inputs into the production of the commodity 'good health'. He concluded that since goods and services are inputs into the production of

commodities, the demand for these goods is derived demand. In essence, the demand for health care is based on the presumption that it has investment benefits in health status i.e. health care is expected impact positively on health status.

From the fundamental law of downward-sloping demand curve, the quantity of health demanded should be negatively related to its shadow price. The shadow price of health depends on factors like the price of health care, education, diet etc.

The intertemporal utility function of a typical consumer is given by,

$$U = U (\phi_0 H_0, \dots, \phi_n H_n, Z_0, \dots, Z_n)$$

where  $U$  is the utility function,  $H_0$  is the inherited stock of health,  $H_t$  is the stock of health at in the  $t^{\text{th}}$  period,  $\phi_t$  is the service flow per unit and  $Z$  is the other commodity consumed in the  $t^{\text{th}}$  period.

Households produce gross investments in health and other commodities in the utility function according to the following production functions,

$$\begin{aligned} I_t &= I_t (M_t, TH_t, E_t) \\ Z_t &= Z_t (X_t, T_t, E_t) \end{aligned}$$

where  $M_t$  denotes medical care,  $X_t$  is the goods input in the production of commodity  $Z_t$ ,  $TH_t$  and  $T_t$  are time inputs and  $E_t$  is the stock of human capital.

It is assumed that a shift in human capital changes the efficiency of the production process in the market sector. The demand curve shows the relationship between stock of health and the return on an investment or the marginal efficiency of health capital. The demand curve slopes downwards due to diminishing marginal productivity of health capital. Marginal productivity of health capital is defined as the increase in the number of healthy days caused by a unit increase in the stock of health.

Grossman's central proposition is that the health can be viewed as a durable capital stock that produces healthy time. The shadow price of health rises with age if the rate of depreciation on the stock of health rises over the life cycle and falls with education if more educated people are more efficient producers of health. The second prediction

of the model is that an individual's demand for health is positively correlated with his wage rate. Lastly, under certain conditions an increase in the shadow price may simultaneously reduce the quantity of health demanded and increase the quantity of medical services.

Zweifel and Breyer (1997) highlighted that the emphasis Grossman makes on long – run optimization tends to distract from the uncertainty surrounding health status and survival itself. The model runs into the danger of overstating the degree of control an individual may have over his health state of health. Particularly, Grossman neglects the role played by uncertainty as the model does not allow for accidents or major illnesses which may impact hugely on the rate of depreciation of the health capital. Moreover, Zweifel and Breyer (1997) noted that the rate of depreciation and loss of health stock may be life threatening and shrink the planning horizon to a few days or hours, and in that event, it rules out long term intertemporal decision making. They proposed an approach which emphasises the individual's lack of control over health status.

### **3.9 Empirical studies on the demand for health care services**

The Grossman model has a solid microeconomic foundation which has provided insights into the nature of the demand for health care and the determination of health itself. Despite its theoretical appeal and potential policy implications the Grossman model has been subjected to very few empirical studies.

One such attempt is by Wagstaff (1986) who used the theoretical model by Grossman. He calculated parameter estimates of the reduced- form and structural demand for health care equations using data from the 1976 Danish Welfare Survey. The study had information on health status, health care utilisation, and socioeconomic variables. Utilisation variables like general practitioner (GP) visits, length of hospital stay and medicine were used as dependent variables in the reduced form demand for medical care equations. The ordinary least squares (OLS) method was used for estimation.

### **Wagstaff's findings**

Wagstaff confirmed the prediction by Grossman on the positive relationship between health stock and education in his pure investment model. However the consumption model had results that were contrary to the prediction that better -educated people are expected to be more efficient producers of health. Instead, the coefficient on the education variable suggested that, holding all other variables constant, the better-educated people use more services than the poorly-educated.

Acton (1975) did an empirical analysis of the non- monetary factors in the demand for medical services. The model assumed that non-monetary factors like travel distance will play an increasingly major role as determinants of demand for health care as out - of- pocket money prices fall due to spreading health insurance and the increasing opportunity cost of time. The model was developed in terms of one provider for simplicity. The model was estimated using data generated from users of out- patients department (OPD) services in New York City Municipal Hospitals with the intention to draw implications for several providers. Estimation was done using simultaneous equation systems (2- Stage Least Squares).

### **Demand for health care services as a choice of health care provider**

Developments in statistical techniques have provided researchers with alternative methods of analysing demand for health care and answer various policy questions in the health sector. The most common econometric approach has been the use of categorical or discrete choice models. The dependent variable that is used is health care provider options.

The number of categories of the dependent variable depends on the location and purpose of the study. For example, Gertler and Van Der Gaag (1987) study in Côte d'Ivoire identified only two provider options, public hospitals and clinics, arguing that there is no private health care in rural Côte d'Ivoire. Mwabu, Ainsworth and Nyamete (1993) distinguished between government, mission and private providers. Utility

maximisation is still central in this approach and the consumer chooses provider that maximizes his/her utility given provider related characteristics

A number of such empirical studies are briefly discussed below, with emphasis on the policy questions that they attempt to address, econometric specifications and the variables used.

Most governments in African countries that implemented health sector reforms introduced prices on health care which had formerly been provided free of charge. Such policies affect consumer decisions about whether and where to seek health care. The effects also vary across the socioeconomic categories of the population, for example user fees are often found to be regressive i.e. affect health care utilisation by the poor more than the rich.

An assessment of the impact of various health policies can be done by estimating demand for health care. An example is a study by Sahn et al. (2003) on the demand for health care in rural Tanzania. They were interested in finding out how changes in the pricing of health services affect their use. They focused on the impact of price and quality of medical care on health demand and choice of provider. They also analysed the role played by the individuals, characteristics in their health care choices, in particular the impact of education, age, and duration of illness.

A nested multinomial logit model was estimated using micro data. The use of two - level nests in the study allowed them to extend the analysis and be able to estimate cross- price elasticities. The extent to which increased user fees for public health care affect other treatment options could then be ascertained.

Another study on Tanzanian rural mainland was done by Frederickx (1998) to analyse the determinants of health status, health care demand and health care choice. Special attention was given to the role of the household income, the availability and the quality of health services as determinants of the health outcome and demand for health care. Logistic regressions were used for empirical estimation with public / private health facility as the dependent variable.

The National Public Health and Research Institute (1998) in Cambodia conducted research that was intended to give an insight into the individual decisions in seeking health care, quality of care perceptions and potential response to an increase in the availability and quality of health care improvements.

Akin et al (1995) attempted to empirically answer three important policy questions for a population sample from Ogun State, Nigeria. The three policy questions were;

- Would price (fee) increases for health care lead to large reductions of care usage or to shifts across types of care used?
- Would price increases lead to net increases in revenues for the health system?
- Would the price increases have larger impacts (in the form of reductions in health care usage) on lower income members of the population?

The determination of demand for medical services was modelled as a provider choice i.e. how the patients' choice of health care provider was affected by price and quality of care variables. Like Sahn et al. (2003), Akin et al. (1995) also used micro data. The difference is in the specification of the models, they used a multinomial probit model in place of the Nested logit Model.

Last but not least, Litvack and Bodart (1993) were interested in the impact of user fees and how improved quality affected health facility utilisation among the overall population and specifically among the poorest people. Three health centres which were to introduce a user fee and quality improvement (i.e. reliable drug supply) policy were selected as "treatment" centres and two comparable facilities not yet phased into this policy were selected as "controls".

Their results indicated that the probability of using the health centre increased significantly for people in the "treatment" areas compared to those in the "control" areas. The reason was that if travel and time costs involved in seeking alternative sources of care are high; when good quality drugs became available at the local health centre, the fee charged for care and treatment represented an effective reduction in the price of care and thus utilisation rose.

### **Some findings from the literature**

The implementation of user fees and their impact on health care utilisation has been the central concern for many studies on demand for health care. When prices of health services are increased, there will be a precipitous decline in use of those services (Sahn et al. 2003). Non-monetary factors were also found to influence health care demand in the absence of user fees. An example is Acton (1995) who found that travel distance will function as prices in discouraging demand and that earned and that non-earned incomes have different impacts on health care choices.

Quality of health care has been found to impact on health care choices. Sahn et al. (2003) concluded that demand for health care would increase if people have the option to see a better doctor/nurse and get access to pharmaceuticals. Another example is a study by Litvack and Bodart (1993) cited in the previous section.

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## **4 METHODOLOGY**

### **4.1 Introduction**

This chapter contains a discussion of both the econometric and empirical specification used for the study. The sampling methods, study sites and data collection methods are also highlighted and ends with a description of the limitations of the methodology used for the study.

### **4.2 Conceptual Framework**

For this study, the individual chooses between, private sector health facilities and public sector health care facilities, which makes it a binary variable. According to Akin et al. (1995) using a continuous dependent variable for 'health care' is impractical. The dependent variable generally chosen is type of care selected by the ill person.

This study follows the binary specification used by Akin (1995) who considered two choices, which are a health care provider and self treatment (no outside assistance). Studies by Frederickx (1998) and Gertler and Van Der Gaag (1987) are other examples of models with binary dependent variables for health care demand.

A multinomial logit model with more than two categories could not be applied because the sample size is small and there are empty categories with missing values for various variables in some categories like no treatment option and religious healers. The solution was to drop these categories from the regression analysis. The private sector category includes self-treatment in addition to surgeries, private clinics and hospitals. The public sector category includes public hospitals and clinics.

The use of a discrete dependent variable rules out the use of Ordinary Least Squares (OLS) in favour of the Maximum Likelihood Estimator (MLE) method. The intention is to establish the probability that an individual will visit a public sector health care facility or a private sector facility if he/she falls ill or is injured given a number of factors.

#### 4.2.1 The Linear Probability Model (LPM)

The linear probability model is specified as follows;

$$Y_i = \mathbf{X}_i\boldsymbol{\beta} + \varepsilon_i$$

where  $\mathbf{X}_i$  is a vector of values for the  $i^{\text{th}}$  observation,  $\boldsymbol{\beta}$  is a vector of parameters and  $\varepsilon$  is the error term,  $Y = 1$  if a choice is made and  $Y = 0$  if it was not made. The expected value of  $Y$  given  $\mathbf{X}$  is the probability that  $Y = 1$  given  $\mathbf{X}$ , which is presented as;

$$\text{Prob} ( Y_i = 1/\mathbf{X} ) = \mathbf{X}_i\boldsymbol{\beta}$$

Since the model is linear, interpretation of the results is similar to OLS regression. The results are not affected by the binary outcome. A unit change in  $\mathbf{X}_k$  will always result in the same change in the probability, hence the name linear probability model.

The major drawback of this model according to Long (1997) is that of nonsensical predictions. In most cases, for extreme values of explanatory variables the estimated probabilities often lie outside the 0 to 1 range. One ends up with probabilities negative probability values and probabilities that are greater than 1, which does not make any statistical sense. Secondly the variances of the error terms depend on the explanatory variables resulting in a problem called heteroscedasticity (non -constant values of the error terms). Lastly the functional form is inappropriate for a binary dependent variable.

#### 4.2.2 The Logit and Probit Models

There are, however two popular functions used to squeeze the probabilities within the 0 to 1 range. Making use of a logistic function to limit the predicted probabilities of the dependent variables to the 0 to 1 range creates the *logit model*. If one uses the cumulative normal function to constrain the predicted probabilities of the dependent variable between the range 0 to 1, then we have a *probit model*.

The role of the error term is not obvious in qualitative dependent variable models. The model is specified as a logit or probit function of the explanatory variables without an error term and the stochastic ingredient is no longer represented by the error term but is now inherent in the modelling itself. According to Kennedy (1994), for each observation the occurrence or non-occurrence of that event comes about through a chance mechanism determined by probability, rather than a draw from a bowl of error terms. For example, the logit provides the expression for the probability that an event will occur. An example of the specification is given below.

$$\text{Prob}(Y = 1) = \text{logit}(\mathbf{X}\boldsymbol{\beta}) = \frac{e^{X\boldsymbol{\beta}}}{1 + e^{X\boldsymbol{\beta}}},$$

where  $Y$  = dependent variable,  $\mathbf{X}$  = vector of explanatory variables,  $\boldsymbol{\beta}$  = predicted probabilities for the dependent variable. For empirical analysis, an unobserved (latent) index is specified as a linear function of explanatory variables plus an error term. Formally, this is presented as;

$$\text{Prob}(Y = 1) = \text{Prob}(\mathbf{X}\boldsymbol{\beta} + \varepsilon > 0) = \text{Prob}(\varepsilon > -\mathbf{X}\boldsymbol{\beta})$$

Or

$$\text{Prob}(Y = 1) = \frac{e^{X\boldsymbol{\beta} + \varepsilon}}{1 + e^{X\boldsymbol{\beta} + \varepsilon}}$$

This is a cumulative density where  $\varepsilon$  is the error term. The distribution of the error term determines whether the model is a probit or logit. If  $\varepsilon$  is distributed normally, the above function becomes a cumulative density of a normal distribution and we have a probit model. If  $\varepsilon$  is distributed such that its cumulative density function is a logistic function, we have a logit model. Estimation of these models is always undertaken by a maximum likelihood technique, discussed in detail by Long (1997) in Chapter 2.

If we specify the model with an error term, it is then possible to interpret outcomes in terms of the theoretically attractive *random utility model*. This specification is consistent with sample selection problems. However the estimators are sensitive to misspecifications, i.e. they are inconsistent if some explanatory variables are omitted and if there is heteroscedasticity in the model.

### 4.3 Empirical specification

Given the setbacks of the LPM highlighted in the previous section, the choice the model to use for empirical estimation is now left between the logit and the probit model. According to Long (1997), the choice between these two is largely one of convenience and convention, since the substantive results are generally indistinguishable. Only the  $\beta$ 's (coefficient estimates) are affected by the assumption made about the error terms, the expected probabilities are not. Furthermore, extremely large data sets are required to distinguish whether observations were generated from probit or logit model.

For empirical analysis the Utility Function approach to discrete choice models has been opted for in this study. It has been used by Akin et al (1995) and Sanh et al (2002). The binary logit model can be specified as a discrete choice model in which an individual chooses the outcome that gives him/her maximum utility (Long 1997). An individual derives utility;

$$U_0 = \beta'X + \varepsilon_0 \text{ from choice 0 and}$$

$$U_1 = \beta'X + \varepsilon_1 \text{ from choice 1.}$$

Where  $\beta$  is a vector of parameters,  $X$  is a vector of explanatory variables (given in Table 2) whilst  $\varepsilon_0$  and  $\varepsilon_1$  are the components of the individual's utility that are unaccounted by the measured covariates,  $X$ . The choice of alternative 1 reveals that the utility derived from alternative 1 is greater than the utility from alternative 0 i.e.  $U_1 > U_0$  (Limdep Version 7.0 User's manual).

#### Explanatory variables

Most of the variables used in this study were based on previous empirical studies. The empirical model assumes that choice of health care is a function of variables in Table 2 below.

**Table 2: List of explanatory variables for the logit model (expected signs for choice of public providers).**

<b>Patient related variables</b>	<b>Variables related to the facility</b>
<ul style="list-style-type: none"> <li>• Patient's income (-)</li> <li>• Age(±)</li> <li>• Size of the household(+)</li> <li>• Gender(±)</li> <li>• Severity of illness</li> <li>• Education (-)</li> <li>• Occupation (-)</li> </ul>	<ul style="list-style-type: none"> <li>• Availability of drugs and medicines (+)</li> <li>• Drug costs (-)</li> <li>• Availability of qualified staff(+)</li> <li>• staff attitudes (+)</li> <li>• User fees(-)</li> <li>• Consultation fees (-).</li> <li>• Availability of medical equipment (+)</li> <li>• Transport cost (-)</li> <li>• Waiting time in minutes (-)</li> </ul>

### **Characteristics of the respondent**

a) The sex dummy was entered to investigate gender differentials in health seeking behaviour. Other variables related to the respondent included the patient's age, education, occupation and seriousness of the illness. In addition, household size and the number of children below the age of 15 years in the household were used. Other studies have included variables like wealth (assets) of the household, urban residence, symptoms of the illness to estimate the demand functions (Akin et al. 1995).

#### b) The respondent's income

According to Akin et al. (1995), most theoretical economic models in the literature consistent with the non-continuous dependent variable techniques and with the basic economic assumption of utility-maximization result in the income term from the budget constraint not being in the demand functions. However income can be included in the model as a control for tastes and preferences. For this study the definition of the income variable is net (after tax) monthly income.

### **Variables related to the health care facility**

Four types of cost of care variables were used for this model. Respondents were asked to indicate how much they paid for transport, user fees for public health care and consultation fees for private health care per visit. The total cost of drugs was also included in the model. The problem with this variable is that cost of drugs depends on the prescribed drugs which in turn depend on the natures of illness. Since no information was gathered on the nature of illness, the resulting cost of drugs is patient specific. The data generated on the cost of drugs can however be used to get a general indication of the impact of cost of drugs on health care choices.

### **Indicators of quality of care**

The structural definition of quality of care highlighted earlier has been used for this study to generate proxies of quality of care. The variables are availability of essential drugs and medicines, qualified personnel, and medical equipment. These variables are qualitative in nature as respondents were asked to rate the facilities they visited using a provided scale.

## **4.4 Fieldwork Methodology**

### **4.4.1 Sampling**

The study was carried out in Harare, the capital city of Zimbabwe. The choice of Harare as the study area was purposive. The study was confined to urban areas because of political unrest and inaccessibility of the resettled population in rural areas. Low, middle, high income and peri-urban areas were randomly selected from the sampling unit (Harare). This was to ensure a wider scope of socio-economic characteristics.

### **The study sites**

Borrowdale, Waterfalls and Mt Pleasant represent the high-income suburbs with up market property and up to 3 acres of land. These areas have good housing and low population density and the richest people in Harare reside in these suburbs. Warren

Park North, Hatfield and Marimba represent the middle-income segment of the city. These suburbs have fairly large residential stands and medium population densities.

Mufakose and Mabvuku are among the oldest suburbs in Harare. Most of the residents are low-income earners. Epworth is a peri-urban area with a squatter camp called Churu Farm which is occupied by the poorest urban dwellers in Harare. Population density is very high as well as unemployment, poverty and crime.

#### **4.4.2 Data collection tools**

The study makes use of micro data since usable data from secondary sources was not available. The study was carried out during the period 2 January to 14 February 2003. A questionnaire was administered to randomly selected individuals in various households in the study sites mentioned above. A copy of the research instrument is attached in Appendix C. Individuals above the age of 18 years were interviewed, since they are eligible to make their own choices of health care providers.

#### **Description of the questionnaire.**

Section A of the questionnaire contains questions relating to the demographic and socio economic status of the respondents. These include questions on age, gender, household size, education, and occupation and income levels. Section B for respondents who fall into the reference period of 4 weeks. The questions include issues regarding severity of illness, choices of health care providers, amounts paid for various health care costs, perceptions about quality of care, waiting time and distance from the facility. Section C contains the same set of questions as section B but only people who were ill or injured in the second reference period responded to the questions.

Ideally, a larger sample should have been obtained but due to time and financial constraints 505 individuals in the study sites were interviewed. However, the sample can still generate meaningful predictions. A total of 60 interviews were carried out for the pilot study. The study made use of 2 recall periods. The first recall period was 4

weeks which was used in many studies of this nature (Sahn et al .2003, Akin et al. 1995, Frederickx 1998). In order to get a larger sample, a second recall period of 8 weeks was used for the second set of respondents. In summary the whole sample consists of people who were ill or injured within 8 weeks. Those who were ill or injured beyond the 8 weeks period were not asked follow-up questions.

#### **4.4.3 Limitations of the design**

- The study required respondents to recall various aspects of their health care choices. The reference periods of 1 month and 4 to 8 weeks were used for the study. There is a risk of measurement error in the sense that respondents may not recall all the required information correctly and give guesses after such a time had elapsed. Ideally a shorter period of say 2 weeks is more reliable but this would shrink the size of the sample.
- Non -response was expected as some individuals might refuse to participate in the study or give incomplete answers to questions. The outcome depends on the individual willingness to participate.
- Interviewer bias was also anticipated. Interviewees may misinform interviewers depending on whether they like their appearances or not or the way they ask the questions.
- There is a sample-selection bias because the study includes only those individuals who have experienced an episode of illness or injury during the reference period. We do not observe the choices of those who were not ill or injured during the reference period. The results are therefore not truly representative of the entire population of the urban population. The problem is however more serious occurrence of illness or injury is non-random.

#### **4.4.4 Data analysis**

The data from the study was captured in a Microsoft Excel spreadsheet and exported to Limdep Version 7.0 econometric software. The Limdep Software was used for data analysis. Firstly, a descriptive analysis of patterns of health care choices, financing options and the related constraining factors across the 3 socio-economic groups was done using cross tabulations. At this stage the health care options were disaggregated into 5 categories namely, private sector, public sector, self -treatment, religious healers and no treatment. The entire sample was used at this stage.

The second stage of analysis involved the formal modelling and estimation of the model. Health care options were reduced to two as explained earlier in Section 4.2 and the empty categories were dropped. A combined sample of the two reference periods was used for the analysis.

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## 5 RESULTS AND DISCUSSION

### 5.1 Descriptive Statistics

#### 5.1.1 The sample

A total of 505 individuals were interviewed for this study. The sample comprises of 55.8 % males and 44.2 % female respondents. There were 67.3% who reported illness or injury in the reference period of 5 to 8 weeks and 32.7 % in the reference period of 4 weeks. In terms of residential locations, 30.1% of the respondents were from the low-income locations, 35.8 % from the middle income and 34.1 % from the high-income locations.

There was a low response rate in the low-income areas .One of the reasons was that people were tired of being questioned without tangible solutions especially after the national census held four months earlier. Some people highlighted that they were willing to participate in studies that would address their immediate concerns, which included unemployment and food shortages. Others asked for some incentives to in the form of cash, t- shirts or caps in order to participate in the study.

#### 5.1.2 Socio-economic status by residential area

The results of the study show that the low income suburbs have the highest percentage of unemployed respondents (51.3%), followed by the middle suburbs with 19% unemployed respondents (see Table 3 below). Only 21% of the formally employed respondents were from the low -income suburbs. Majority (66.3%) of the respondents from the high-income suburbs were formally employed. Self- employment is more common in the middle and low suburbs with 29.9 % and 24.3% respectively. Most of the self- employed respondents mentioned vegetable vending, tuck shop ownership, repairs and cross border trading as their sources of income.

**Table 3: Occupations and income levels by residential location (%).**

		<i>Occupation</i>				
		<b>Formal</b>	<b>Student</b>	<b>Self-employed</b>	<b>Retired</b>	<b>Unemployed</b>
<i>Location</i>	<b>1</b>	21.1	3.3	24.3	0.0	51.3
	<b>2</b>	42.0	7.7	29.9	1.1	19.3
	<b>3</b>	66.3	16.2	6.4	1.2	9.9
		<i>Income</i>				
		<b>&lt;15 000</b>	<b>15-30 000</b>	<b>31-50 000</b>	<b>51-75 000</b>	<b>&gt;75 000</b>
<i>Location</i>	<b>1</b>	59.2	27.0	11.2	2.0	0.6
	<b>2</b>	29.8	25.4	19.3	12.2	13.3
	<b>3</b>	11.6	16.3	12.8	11.6	47.7

**Location 1 = Mabvuku, Epworth and Mufakose. Location 2 =Warren Park North, Hatfield and Marimba. Location 3 = Borrowdale, Mt Pleasant and Waterfalls. n = 505**

The same pattern is echoed in the level of net monthly income. Majority (47.7%) of the respondents residing in high-income locations have net monthly incomes exceeding Zim\$75 000.00 while 59.2 % of the respondents from the low income suburbs earn less than Zim\$15 000.00 which was the minimum wage at the time the study was carried out. This is far below the subsistence level of income required during the harsh economic conditions in Zimbabwe. Respondents in the middle-income locations were evenly distributed across the income brackets. It can be concluded that low- income suburbs are faced with high unemployment and low incomes below the subsistence levels subjecting them to poverty when compared to the other two categories.

### **5.1.3 Choice of health care provider by residential areas**

The results in Table 4 below show that 77.5% of respondents in the high- income suburbs visited private sector facilities, which include doctor's surgeries, private hospitals private clinics and nurses' clinics. There was less utilisation of public sector facilities (12.4%) and insignificant visits to religious healers (1.3%) by this group of respondents. This can be accounted for by higher incomes which enable them to pay out- of- pocket for drugs and consultation fees. This could also be explained by the ownership of insurance cover as shown in Table 7 which is a major source of financing for this income group. It can be concluded that high-income earners

avoided public sector facilities, maybe because of poor quality care at the public sector facilities.

**Table 4: Choice of health care provider by location and gender (%)**

		<i>Providers</i>				
		<b>Private sector</b>	<b>Public Sector</b>	<b>Self-treatment</b>	<b>Religious</b>	<b>No-treatment</b>
<b>Location</b>	<b>1</b>	11.8	60.0	9.0	8.2	11.0
	<b>2</b>	53.0	26.0	11.6	2.8	6.6
	<b>3</b>	77.5	12.4	7.6	1.3	1.2
<b>Gender</b>	<b>0</b>	41.3	35.9	9.0	3.6	10.2
	<b>1</b>	55.0	28.0	10.0	3.9	3.1

**Location 1 = Mabvuku, Epworth and Mufakose. Location 2 =Warren Park North, Hatfield and Marimba. Location 3 = Borrowdale, Mt Pleasant and Waterfalls. n = 505**

**Gender, 0 = females, 1 = males**

**Private = private hospitals and clinics, doctors surgeries and nurses' clinics**

**Public = public hospitals and clinics and other public facilities,**

**Self treatment =buying drugs & medicines from pharmacies, shops and other sources as first course of action.**

**Religious = faith and traditional healers.**

**No Treatment = respondent did not take any of the above actions**

From Table 4 above, 60.0 % of the respondents in the low -income suburbs visited public sector health facilities compared to 26% and 12.4 % in middle and high-income suburbs respectively. The public sector is viewed as having poor quality of care and overcrowded but cheap. The average user fees at public health care facilities were only Zim\$338.80 (See Table 5 below) compared to the average consultation fees of Zim\$1 117.18 at private sector facilities. More respondents from the low- income suburbs consulted religious healers (8.2 %) when compared to the middle and high-income locations which had 2.8% and 1.3 % of respondents respectively.

**Table 5: Variable means.**

Variables	Variable Description	Mean
Age	Number of years completed	30
Pple	Size of the household	6
Chldrn	Children below 15 years of age	2
Consl	Consultation fees per visit	Zim\$1 117.18
Userfee	User fees per visit	Zim\$338.80
Drugc	Total cost of drugs and medicines	Zim\$4 380.08
Transpc	Transport cost per visit	Zim\$194.07
Time	Waiting time before receiving care	45.81 min

Zim \$ =Zimbabwean Dollar

Self- treatment (buying drugs from various sources without a prescription as the first course of action) was prevalent in all suburbs with 9.0%, 11.6% and 7.6% of the respondents in low, middle and high- income suburbs respectively. The sources of drugs self -treatment in middle and high -income suburbs were mainly pharmacies and shops. Some respondents in the low- income suburbs mentioned street vendors and nurses as sources of drugs in addition to shops.

The option for no treatment was reported by 11.8% of respondents in the low -income suburbs. Only 1.5% of the respondents in high-income suburbs did not seek any form of care. It can be concluded that poor households rely heavily on the public sector and informal sources of care more than the private sector. The choice of private sector health care seems to be limited for poor individuals.

#### **5.1.4 Gender and the choice of health care provider**

A higher percentage of males 55.0 % (see Table 4 above) visited private sector health care facilities compared to females (41.3%). This gender differential could be a result of intra -household allocation of resources. Males are usually heads of families in Zimbabwe and are therefore in control of the household's resources. They may seek high quality of care at private facilities while the rest of the family goes to the public sector. There was a higher percentage of women (10.3%) who did not seek any form of care compared to males (3.1%). Therefore gender has an impact on the choice of health care provider.

### 5.1.5 Education and the choice of health care provider

Respondents with tertiary education (78.9%) and 48.7 % who completed secondary school (see Table 6 below) visited private sector health facilities. A higher percentage of respondents with complete secondary school (48.7%) visited public health care facilities compared to 41.2 % respondents with no formal education. However those without formal schooling have the highest percentage of self-treatment (34.5%) and respondents with primary education had the highest percentage (28.1%) of no treatment responses.

**Table 6: Education and choice of health care providers (%)**

		<i>Providers</i>				
		<b>Private</b>	<b>Public</b>	<b>Self-treatment</b>	<b>Religious</b>	<b>No-treatment</b>
<i>Education</i>	<b>1</b>	20.7	41.4	34.5	0.0	3.4
	<b>2</b>	3.1	32.8	23.5	12.5	28.1
	<b>3</b>	18.8	41.7	20.8	12.5	6.2
	<b>4</b>	48.7	42.2	4.8	1.6	2.7
	<b>5</b>	78.9	14.9	2.3	1.2	2.9

1= No formal education, 2= completed primary school, 3= incomplete secondary school, 4= completed secondary school, 5= tertiary education. n = 505

It can be concluded that education has an impact on the choice of health care provider. Highly educated people have higher underlying incomes and more information with regards their health care needs .A study by Frederickx (1998) also found that education makes a bigger difference for the choice between public and private health care. The explanation was the existence of shorter waiting times at private health care and that better educated have a higher value of time so they shun public sector facilities which may waste their time.

### 5.1.6 Forms of health care financing by residential areas

The most prevalent forms of health care financing in the low- income suburbs are payments from the respondent's own income (34.6%) and borrowing from friends and relatives (35.4%) of the respondents (see Table 7 below). Selling of household goods to finance health care was reported by 16.9 % of the respondents from the low -

income suburbs. Health insurance was reported by only 3.9% of the respondents and no one reported sourcing funds from financial institutions.

These findings support results obtained by Mutangadura (2001) on coping strategies used by the poor under socio –economic stress in urban areas of Zimbabwe. She found that in Zimbabwe most poor households were dependent on informal business activities and sale of household assets to cope under socio-economic stress. The reason was that poor households could not caution themselves from income shocks because they have limited access to insurance and credit, and they have poor asset base when compared to richer households.

**Table 7: Health care financing by residential locations (%)**

		<i>Financing</i>						
		<b>Health insurance</b>	<b>Out-of pocket</b>	<b>Friends&amp; relatives</b>	<b>Financial institutions</b>	<b>Selling household goods</b>	<b>Other sources</b>	
<i>Location</i>		1	3.9	34.6	35.4	0.0	16.9	9.2
	2	27.6	47.9	17.2	0.0	5.5	1.8	
	3	40.4	43.0	14.7	0.0	0.6	1.3	

**Location 1 = Mabvuku, Epworth and Mufakose. Location 2 = Warren Park North, Hatfield and Marimba. Location 3 = Borrowdale, Mt Pleasant and Waterfalls. n = 505**

Other sources of health care financing that were reported by individuals in the low-income group included the Social Dimension Fund (SDF), the church and Non-Governmental Organisations (NGOs). The conclusion is that poor households are much dependent on informal sources of health care financing.

High-income locations had the largest percentage (40.4%) of people with health insurance. However payments from own income was also largely prevalent in this group with 43.0 % respondents reporting out of pocket payments. 47.9 % of the respondents from the middle- income suburbs reported payments form own income as the major source of financing. Selling of household goods is less pronounced for this group of respondents.

It can be concluded that individual cash payment is the major method of health care financing. Health insurance has limited coverage especially in the low-income suburbs. The results support the findings by the Commission of Review into the Health Sector (1999) which identified that 50 % the total national health expenditure is private spending by approximately 30 medical aid societies (with a membership of approximately 1 million i.e. ~10 % of the total population.) and individual cash payments. Surprisingly, none of the respondents from the three income groups reported financing by borrowing from financial institutions to finance health care. This implies that this option is not available in Zimbabwe.

### 5.1.7 Perceptions about the quality of health care services

The structural definition of quality of care has been used for this study. The respondents were asked to give their subjective measures of the quality of medical equipment, staff attitudes, availability of drugs and qualified personnel at the facilities that they visited. The results are shown in Table 8 below.

**Table 8: Perceptions about quality of health care services (%)**

<i>Factor</i>	<i>Rating</i>	<i>Private</i>	<i>Public</i>
Staff attitudes	1	19.8	47.1
	2	42.9	33.1
	3	37.3	19.8
Availability of trained personnel	1	21.0	55.4
	2	37.8	21.7
	3	41.2	22.9
Availability of essential drugs	1	35.0	61.8
	2	32.5	27.4
	3	32.5	10.8
Availability of medical equipment	1	21.2	54.1
	2	36.9	22.3
	3	41.9	23.6

1 = poor, 2 = neutral, 3 = satisfactory. n = 505

About 47.1% of the respondents who visited public sector facilities (See Table 8) perceived staff attitudes to be poor in public sector health facilities which is almost

double the percentage of people who perceived staff attitudes to be satisfactory (19.8%) in these facilities. The conditions of service at most public facilities are very poor, leading to overworked and rude staff. Most general practitioners are now spending more time in private practice (Dhliwayo 2001). Majority of the respondents who visited private sector health facilities rated staff attitudes as neutral (42.9%) and (37.3%) people rated staff attitudes to be satisfactory at these facilities.

The availability of qualified staff follows the same pattern with 55.4% respondents rating public facilities as poorly staffed. For the private sector, 41.2% of the respondents rated availability of staff as satisfactory. Uncompetitive salaries and poor incentives and allowances offered by Public Service Commission have made it difficult for the public health care system to retain staff.

The country has witnessed mass exodus of trained staff to other countries, especially South Africa and England. Private sector drain has also dealt a blow to service delivery in the public sector because working conditions and salaries in the private sector are more competitive than those in the public sector. This has resulted in skeleton staff serving in public sectors especially in rural hospitals and clinics; some are run by nurse aides who have limited competency.

The problem of essential drugs is more serious in the public sector facilities with 61.8% of the respondents rating drug availability as poor. Only 35% of the respondents who visited the private who visited private sector rated the availability of essential drugs as poor. The Commission of Review into the Health Sector (1999), found the availability of vital drugs to be 30-50% at RHCs and clinics 50-70% at district hospitals, urban clinics and Mission hospitals. Provincial and District hospitals had better supplies, with 80-90% of essential drugs availability. However, since then the situation has been deteriorating over the recent years, mainly due to drug management and procurement problems caused by foreign currency shortages.

The results of the study show the same pattern for medical equipment, poor medical equipment is mostly pronounced in the public sector as 54.1% of the respondent perceived availability of medical equipment to be poor compared to 21.2% of those who visited private sector facilities. The deterioration of the Zimbabwean dollar and

the acute shortage of foreign currency has led to problems in acquisition of specialised medical equipment. The existing equipment in the public sector is often poorly maintained.

#### 5.1.8 Ranking of the factors affecting the choice of health care provider

Topping the list (See Table 9 below) of most important factors is the availability of essential drugs. (62.7%) respondents rated availability of drugs as very important when they decide to seek health care. Patients expect drug prescription to be the end of a consultation process. Drugs are expected to cure the ailments that they are suffering from hence there is little incentive for a sick person to visit a facility with poor drug supply where his/her chances of getting medication is limited and as a result poor health outcomes.

This is not surprising given the current situation at most public health sector health facilities in Zimbabwe. Drug supplies have always been inadequate as discussed in the earlier section. Foreign currency shortages have worsened the problem; most people are seeing no point in visiting a facility when they are not assured of getting the treatment.

**Table 9: Ranking of factors affecting the choice of health care provider (%)**

Factor	Ranking		
	1	2	3
Availability of drugs /medicines	62.7	21.9	14.4
Cost of drugs	57.2	21.6	21.2
Severity of illness	56.9	28.8	14.3
Availability of staff	55.6	33.5	10.9
Insurance cover	49.6	31.5	18.9
Staff attitudes	45.4	39.8	14.8
Level of personal income	43.4	25.8	30.8
Consultation fees	41.5	34.2	24.3
User fees	39.7	35.4	24.9
Waiting time	35.4	42.7	21.9
Distance from the facility	31.4	41.5	27.1
Beliefs in faith healers	14.7	20.2	65.1
Beliefs in traditional healers	3.4	13.5	83.1

1 =very important, 2 neutral, 3 not important. n=505

Drug costs were reported as the second most important factor by 57.2% respondents. Drug costs constitute the largest proportion of health care expenditure because they are very expensive. The cost of drugs is prohibitively high in Zimbabwe. The average cost of drugs was Zim\$4380.08 (see Table 5).

Lack of drugs at most public sector facilities in Zimbabwe has resulted in patients having to purchase drugs at their own cost at private pharmacies and other sources. Drug prices have been spiralling over the past years because mark-ups on drug prices in the private sector are determined by the market forces. This makes them out-of-reach for many people especially the poor and as a result some people would opt for other less expensive forms of health care like religious healers or no treatment.

Severity of illness is the third most important factor determining the choice of health care reported by 56.9% of the respondents. This could mean that respondents delay reporting illness or do not seek care at all for minor less severe ailments, maybe because of the prohibitively of high costs of seeking care.

Availability of trained staff was also a major concern for 55.6% of the respondents. As discussed earlier, the public sector has skeleton and under qualified staff. Patients may not be willing to take the risk seeking health care from under -qualified staff. Under qualified staff is often associated with poor expected health outcomes. This reduces confidence in public sector health care delivery. Those who can afford to pay private sector cost tend to shun the public health sector

The other important factors ranked by order of importance were insurance cover, (49.6%), staff attitudes (45.4%) income (43.4%) and consultation fees (41.5%). User fees which averaged Zim\$388.00 did not exert huge influence on the choice of health care provider. This is so because the government controlled them. However their impact on the choices of poor households cannot be downplayed because there are some poorer households who could not afford them. Consultation fees in the private sector are market determined and could exert more influence in the future because of the unstable prices in the economy.

The Herald Newspaper (7 April 2003) reported that doctors and privately owned hospitals increased their tariffs and consultation fees by 60 and 40 percent respectively, citing inflation and operational costs as the reason for the hike. A reader of the newspaper had this comment on this issue,

"Patients who cannot afford the charges will now die in their homes, while those who are brave enough will have to brace it up with traditional healers or look for other remedies,"

The urban poor are at a disadvantage when compared to the rural poor. According to Dhliwayo (2001) the cost of health care has increased sharply as shown by the Medicare index in Table 1. Rural facilities are more affordable due to the abolition of user fees while the urban poor are still facing user fees at public facilities. However the quality of health care services is very poor.

There were more respondents who rated waiting time (42.7%) and distance (41.5%) as neutral factors than being very important and not important. With regards to distance, most urban residents often have municipal clinics and surgeries in their suburbs or in the city so distance travelled is not a big issue when compared to rural residents who often travel very long distances to health care facilities.

Beliefs in religious healers rated as the least important by (65.1%) of the respondents. Traditional healers were rated as not important by the highest percentage of respondents (83.1%). Visits to traditional healers are often a sensitive issue and very often people do not make their beliefs known when compared to faith healers. People often visit traditional healers secretly or under the cover of the night. The role of traditional healers is most pronounced in rural areas as compared to urban areas but as the socio-economic crisis continues, it would not be surprising for people turning religious healers.

## **5.2 Regression Results**

### **5.2.1 Overall statistical evaluation of the Logit model**

The Logit model was estimated with a sample of 452 observations after dropping the religious healers and no treatment options.  $R^2$  cannot be used as a goodness of fit measure for this kind of a model. However there is an option of using the percentage of correctly predicted values which is also misleading (Kennedy 1994). A better predictor is the sum of the fraction of zeros correctly predicted plus the fraction of ones correctly predicted.

The result should exceed unity if the model is of value. The result for this model is 1.59 (See Appendix A). Table 11 in Appendix A also shows an overall significance level of 0.0000. The model was completed after seven iterations indicating that there were few problems in the data. It can be concluded that the variables in the model jointly explain the health care choices made by the respondents.

### **5.2.2 Significant Variables**

The model assumes the choice of health care to be between the public and private sector facilities and which is dependent on individual's characteristics and characteristics of the facilities. Table 10 below shows a summary of the regression results.

#### **Gender**

The regression results show that the respondent's gender affects the choice of health care made. The marginal effect suggests that for a male respondent, the probability of visiting a private facility is 0.38 greater than a female respondent, holding all other factors constant. This confirms earlier finding that when male respondents get ill, they give themselves better treatment in private facilities than the rest of the household mainly because they control the household's resources.

**Table 10: Regression Results; Maximum likelihood estimates (predicted probabilities of Y = 1) and marginal effects (partial derivatives on probability Y = 1) for the logit model**

Variables	Coefficient estimates	P -Value	Marginal effects
<b>Dependant Variable</b>			
Prov2			
<b>Independent Variables</b>			
Constant	0.0554	0.9525	0.9570
<i>Individual's characteristics</i>			
Age	0.0239	0.1598	0.4134
Gender	0.2107**	0.0356	0.3799
Pple	-0.2043*	0.0675	-0.4192
Occp2	-0.7042	0.1940	-0.1218
Occp3	-0.0891	0.8590	-0.1541
Occp4	-0.9871*	0.0490	-0.1707
Occp5	-0.5102**	0.0300	-0.4351
Educ2	0.5687	0.1959	0.2712
Educ3	0.8712*	0.0979	0.1266
Educ4	0.3158**	0.0418	0.1559
Educ5	0.7196***	0.0081	0.5444
Inc2	0.7385	0.1109	0.1277
Inc3	0.6394	0.2293	0.1106
Inc4	0.5923***	0.0046	0.3445
Inc5	0.6603***	0.0005	0.4980
Sever2	-0.9683**	0.0272	-0.1675
Sever3	0.5423	0.1983	0.1276
Sever4	0.7555*	0.0750	0.4352
<i>Factors related to the facility</i>			
Fees	-0.2990***	0.0006	0.6587
Drugc	0.6484**	0.0359	0.2357
Time	-0.1890***	0.0038	-0.3276
Transpc	-0.3030***	0.0048	-0.5107
Persn12	0.3097	0.3616	0.5354
Persn13	0.1750	0.6449	0.3026
Attde2	-0.2081	0.5238	-0.3598
Attde3	0.3553	0.3653	0.6142
Avdrugs2	-0.1254	0.7054	-0.2168
Avdrugs3	0.1723**	0.7037	0.2780

Note: \*\*\* = significant at 1 % level of significance, \*\* = significant at 5 % and \* = significant at 10 %. The omitted categories are females for gender, formal employment for occupation, no formal education, income <Z\$ 15 000, minor illness, poor availability of personnel, poor staff attitudes and poor availability of drugs.

### **Size of the household**

The results imply larger the households with more members utilise the public sector facilities more than the private sector. For an additional person in the household size, the likelihood of utilising private sector facilities is reduced by 0.42 holding all other variables constant. This can be accounted for by the fact that per capita disposable income is reduced if there are more members in the household especially if the additional person is not economically active like a new baby to the family. Discretionary income to spend on health is reduced hence people will go for cheaper options like public health care.

### **Education**

The results show that some education categories have no impact on the individual's choice of health care provider. There is no significant difference between respondents with no formal education (base category) and those with incomplete primary school and incomplete secondary school because these variables are not statistically significant. The positive signs on the coefficients imply that more educated individuals (those with complete secondary school and tertiary education) are more likely to utilise private sector facilities than public sector facilities when compared to those with no formal education.

For individuals who completed secondary school and those with tertiary education, the likelihood of utilising private sector facilities is 0.16 and 0.54 respectively greater than those with no formal education *ceteris paribus*. This supports earlier utilization pattern in section 5.15 and the explanation that highly educated people have more chances of getting highly paid occupations which enables them to afford high priced private care. Highly educated people have more awareness on their health needs and preference for better quality of care. They usually perceive public health facilities to have poor quality of care than private sector facilities.

### **Occupation**

There is no statistically significant difference between the unemployed and self-employed and student's behaviour in the choice of health care provider. However for the retired or pensioners their likelihood of utilising private is 0.17 lower than the respondents with formal employment holding all other factors constant. The

likelihood of unemployed respondents to visit private sector facilities is 0.44 lower than the formally employed individuals.

The underlying incomes of the respondents could account for the choice behaviour. Since pensioners/retired respondents earn fixed incomes, the real value of the pensions if being eroded by inflation in the country thereby exposing them to more poverty. As a result they will have to resort to cheaper forms of health care. Students often have some form of health insurance and the self-employed have some source of income, which could explain why there is no significant difference between them and those with formal employment. For the self-employed the question is whether they make enough money from the informal activities.

This result cannot be overemphasized because some of the formally employed often earn incomes that are below the minimum wage. Most unemployed individuals often have very low incomes hence they resort to cheaper public health care and other informal forms of care like religious healers. In extreme cases they do not seek any treatment at all.

### **Income**

There is no significant difference between lower income earners and the lowest income brackets. The results show that only the high-income brackets have significant impact on the choice of health care providers. For people earning between Z\$51 000 and Z\$75 000 the probability of visiting private sector facilities is 0.35 higher than the lowest income earners, holding all other variables constant. For those with net monthly incomes in excess of Z\$75 000, the probability utilising private health care is 0.50 greater when compared to the lowest income earners.

Health care costs at private facilities in Zimbabwe are prohibitively high as shown by high consultation fees and cost of drugs (see Table 5) such that only people with very high income can afford private health care. Low-income earners have their choice of health care limited to the public sector and informal forms of care. As cited earlier, the role of income in discrete choice models is to represent tastes and preferences. One can conclude that rich individuals have a preference for private health care.

### **Severity of illness**

The results show that for an individual with mild illness, the probability of utilising private sector facilities relative to the public sector is 0.17 less than the respondents with minor ailments, holding all other factors constant. This could be because those with minor ailments are not likely to seek medical care. However for a critical condition the likelihood of utilising the private sector is 0.44 greater than an individual with a minor ailment. When the condition is critical, even poor individuals make sacrifices to make sure that they get the best care at this critical time. Under these circumstances people may resort to selling their possessions or borrow to finance health care. People perceive quality of health services at private facilities to be higher as well as the chances of a better health outcome.

### **Fees**

The fees variable measures the amount that individuals pay at facilities as consultation fees so it excludes the cost of medication. The results show that a dollar increase in fees reduces the probability of an individual visiting the private sector by 0.66, holding all other factors constant. This result is consistent with the empirical findings that user fees act as a deterrent to utilisation of health care. In this instance higher fees discriminate private sector facilities in favour of the public sector facilities.

### **Cost of drugs**

In the case of the, the results imply that for a unit increase in the cost of drugs, the probability of the respondents utilising private sector facilities increases by 0.24 holding all the other variables constant. This is not surprising given the critical shortage of drugs in the public sector. It won't make much cost difference for people to visit the public sector since they will end up buying drugs at private facilities. There is an incentive to utilize the private facilities were there are prospects of better quality of health care.

### **Waiting time**

The waiting time variable is statistically significant impact on the choice of health care provider. The results imply that for a unit increase in waiting time, the probability of the respondents utilising private sector facilities is reduced by 0.33. The possible explanation for this kind of behaviour is the way people value their time. The

opportunity cost of time wasted could be high for some individuals hence they will opt to do other activities instead of seeking health care.

### **Availability of drugs**

Availability of drugs was captured as a qualitative variable with the poor drug availability as the reference category. From the results one can conclude a satisfactory supply of drugs increases the likelihood of private sector visits by 0.28 compared to facilities with poor drug supplies holding all other variables constant. There is no statistically significant difference between facilities with drug supply rated neutral and those rated as poor. The results confirm the earlier findings that drug supply is a very important factor considered when people make health care choices.

### **5.2.3 Insignificant variables**

The results of the study show that age has a positive but statistically insignificant influence on the choice of public health care. The same conclusion can be reached on staff attitudes, availability of qualified personnel and availability of essential drugs. Improvements in drug supply and staff attitudes to satisfactory levels results in positive but statistically insignificant impacts on the choice of public health care providers. The lack of a significant impact of personnel availability and the availability of essential drugs is contrary to expectations, as one would expect these variables to result in choices biased against the public sector since the country is currently facing a critical shortage of health care personnel and drugs.

## **6 CONCLUSION AND RECOMMENDATIONS**

### **6.1 Introduction**

This is the final chapter of the study which gives the conclusion in Section 6.2 based on the outcomes and objective of the study in order to assess the success of the study in terms of being able to achieve what it was set out to do. Section 6.3 highlights the policy recommendations made and in the last recommendations for further studies are given.

### **6.2 Conclusion**

The results of the study show a clear message that deregulation of the health sector did manage to increase the size of the private sector but failed to widen the scope of provider choices especially for the poorer residents in the study area. It can be concluded that there is movement towards equity in access to health care services. However, the poorer people rely on the public sector and other informal forms of health care.

The following factors were identified as barriers to access in the study. Educational attainment limited the access to private health care services by the poor. This is so because education is a key socio-economic factor which determines occupation and the individual's income levels. User charges were also a major deterrent to utilisation of health care services for the poor. Increases in consultation fees and cost of drugs were found to reduce the utilisation of health care services in the private sector.

Other factors like the size of the household were found to have an impact on the pattern of utilisation of health services. Additional members into the family were found to reduce the likelihood of seeking private health care because additional members reduce per capita disposable incomes in the household. A gender bias in health care utilisation was also found in the study as male respondents had a higher likelihood of visiting private sector facilities than their female counterparts.

The coping mechanisms used by poor households included selling of household possessions and borrowing from informal sources to finance health care. In extreme cases, the sick individuals did not seek any form of care or bought drugs without consulting any health care providers. In summary, deregulation of the health sector alone does not result in improved access to better quality of health care for the population. Poor people can become more vulnerable if deregulation of the health sector is not accompanied by appropriate regulation of private sector activities and a social safety net to protect the poor.

The level of competition was not high enough to lead to lower health care costs as the fees and cost of drugs continued to increase. Gains in terms of improvements in the quality of health services were also not realised, as the public sector facilities were still perceived to have poor quality of health care i.e. poor medical equipment, poor staffing levels and availability of medication.

### **6.3 Policy recommendations**

- Since the performance of the health sector depends on the macroeconomic environment, there is need for the government to institute policies that foster economic growth, create employment, stabilise prices and curb the foreign currency crisis. A stable macroeconomic environment would encourage employment creation, stable incomes and reduction of poverty.
- The results indicated that poorer urban residents rely on the public and informal health care. It has been noted that real government expenditure on public the government should give more priority to the health sector by allocating more funds to this sector. Resource allocation within the health sector should be directed more towards primary health care, HIV/AIDS awareness and treatment programmes for the poor to be able to benefit.
- Majority of the urban poor rely on the informal sector for incomes and survival. The government is therefore encouraged to support the informal sector activities. Funds should be made available for income generating

projects for poor people to have sustainable incomes to spend on basic health care and education. This follows from the finding that education and incomes had a significant impact on health care utilisation. Supporting the informal sector would also help in lift the poorer urban residents from poverty.

- Inadequate health personnel have been found to be crippling health care delivery in the public sector although the results of this study did not prove this. Government focus on the production policies is not enough to address the problem. The government should place more emphasis on policies that improve staff retention, for example improvement of working conditions and remuneration.
- The study identified that there is limited insurance cover and most people rely on out-of-pocket payments. It is recommended that the government implement the proposed Social Health Insurance scheme which has been on the drawing board since 1996. This will cover employed people who are currently left out by the existing medical aid schemes.
- Strengthening of the role of the Social Dimension Fund (SDF) in urban areas will help insure the unemployed population in urban areas. There is also need to creating awareness of the existence of this fund because only a few people were aware they could access the fund Supporting community based risk sharing initiatives is another policy that can be pursued.
- Hongoro and Kumaranayake (2000) identified that there was the absence of legal mechanisms to control the price of care among other weaknesses of the regulatory system in Zimbabwe. The cost of health care has been found to be escalating especially in the private sector. There is therefore need for strengthening the regulation of the private sector activities in order to control the spiralling of health care costs and curb opportunistic behaviour on the part of providers.

#### 6.4 Further research

- There is need for a complementary provider survey to be conducted alongside the interviews. The current instrument provided information based on the facilities that were actually visited by the respondents, and no information was available on the other facilities.
- For future studies the inclusion of rural areas in the study would provide a holistic picture to understand the nature of health care demand in Zimbabwe.
- In the case of methodology, a multinomial logit/probit estimation perhaps with nests would provide a more elegant understating of health care choices and degree of substitutability between health care motions as well as the elasticity of demand.

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## 7 Appendix A: Additional statistics from the logit model

**Table 11: Frequencies of actual and predicted outcomes.**

Actual	Predicted		Total
	0	1	
0	102	49	151
1	26	275	301
Total	128	324	452

$$\text{Fraction of zeros correctly predicted} = \frac{102}{151} = 0.676$$

$$\text{Fraction of ones correctly predicted} = \frac{275}{301} = 0.914$$

Total = 1.59

**Table 12: Other statistics from the regression model.**

<b>Dependent variable</b>	PROV2
Weighting variable	One
Number of observations	452
Iterations completed	7
Log likelihood function	-184.6746
Restricted log likelihood	-287.9349
Chi-squared	206.5206
Degrees of freedom	26
Significance level	0.000000

## 8 Appendix B: Detailed Description of variables

1. PROV2: Dummy variable = 1 if the respondent sought medical care at a private sector health care facility, else = 0
2. AGE: Respondent's age (number of years completed)
3. GENDER: Dummy variable = 1 if respondent is male, else = 0
4. PPLE: Number of people in the household.
5. CHLDRN: Number of children under the age of 15 years in the household.
6. OCCP2: Dummy variable = 1 if the respondent is a student, else = 0
7. OCCP3: Dummy variable = 1 if the respondent is self-employed, else = 0
8. OCCP4: Dummy variable = 1 if the respondent has retired/pensioner, else = 0
9. OCCP5: Dummy variable = 1 if the respondent is unemployed, else = 0  
*(The base category for the occupation dummy variables is formal employment.)*
10. EDUC2: Dummy variable = 1 if the respondent has completed primary school education, else = 0
11. EDUC3: Dummy variable = 1 if the respondent has incomplete secondary school education, else = 0
12. EDUC4: Dummy variable = 1 if the respondent has completed secondary school education, else = 0
13. EDUC5: Dummy variable = 1 if the respondent has tertiary education, else = 0  
*(the base category for the education dummy variables is no formal education.)*
14. INC2: Dummy variable = 1 if the respondent's net monthly income falls within the range Zim \$15 000.00 - \$30 000.00, else = 0
15. INC3: Dummy variable = 1 if the respondent's net monthly income falls within the range Zim \$31 000.00 - \$50 000.00, else = 0
16. INC4: Dummy variable = 1 if the respondent's net monthly income falls within the range Zim \$51 000.00 - \$75 000.00, else = 0
17. INC5: Dummy variable = 1 if the respondent's net monthly exceeds \$75 000.00, else = 0  
*(The base category for the income dummy variables is net monthly incomes <Zim\$15 000)*
18. SEVR2: Dummy variable = 1 if the respondent had a mild illness, else = 0

19. SEVR3: Dummy variable = 1 if the respondent had severe illness, else = 0
20. SEVR4: Dummy variable = 1 if respondent had a critical condition else = 0  
*(The base category for the severity of illness variables is minor illness)*
21. Fees: Consultation fees paid by respondents at private and public sector facilities per visit.
22. DRUGC: Amount paid by respondent for drugs and medicines.
23. TRANSPC: Transport costs per visit.
24. TIME: Waiting time at the facility in minutes.
25. AVDRUGS2: Dummy variable = 1 if respondent rated availability of drugs at the facility as neutral, else = 0
26. AVDRUGS3: Dummy variable = if respondent rated availability of drugs at the facility as satisfactory, else = 0  
*(The base category for availability of drugs variables is poor drug availability)*
27. ATTDE2: Dummy variable = 1 if staff attitudes at the facility were rated neutral, else = 0
28. ATTDE3: Dummy variable = 1 if staff attitudes at the facility were rated satisfactory, else = 0 *(The base category for the staff attitudes dummy variables is poor staff attitudes).*

## 9 Appendix C: Questionnaire

Location number .....

### Section A

1 Gender

Male	1
Female	2

1.1 Age – number of completed years

1.2 Year of birth (date/month/year) ..... /..... /.....

1.3 Number of people in the Household

1.4 Number of children under the age of 15 years in the household

1.5 Education

No formal education	1
Primary school -completed	2
Secondary school- incomplete	3
Secondary school- completed	4
Tertiary education	5

1.6 Occupation

Employed in the formal sector	1
Student	2
Self – employed	3
Retired/ pensioner	4
Unemployed	5

1.7 What is the level of your net monthly income?

Less than \$15 000	1
Between \$15 000 and \$30 000	2
Between \$31 000 and \$50 000	3
Between \$51 000and \$75 0000	4
Above \$75 000	5

### Section B

**2** Did you experience any kind of illness during the **4 weeks**?

Yes	1
No	2

**2.1** If your answer to question 2.1 is **no** and you experienced illness **5 to 8** weeks ago please go to **Section C**

**2.1.2** If your answer is **yes** then complete the rest of **Section B**

**2.2.2** How would you describe the severity of the illness?

Minor	1
Mild	2
Severe	3
Critical Condition	4

**2.3** Where **did you go** to seek medical help or care? Tick the right box in Column 1

Sector	Type of facility	Col 1
Private	Doctors surgery	1
	Clinic	2
	Hospital	3
	Nurse's clinic	4
	Other (specify).....	5
Public sector	Hospital	6
	Clinic	7
	Other (specify) .....	8
Self-treatment	Bought drugs the shops	9
	Bought drugs from pharmacy	10
	Other sources of drugs .....	12
Religious healers	Traditional medicine	13
	Faith healing	14
	Did not go for any of the above options	15

**2.5** How much did you pay for the following during your visit in the past 4 weeks? Please specify the amounts.

Item	Amount in ZIMS
Consultation fees	
User fees in public facilities	
Drugs and medicines	
Transport costs per visit	
Favours / unofficial fees	

2.6 How did you finance the costs listed in Question 2.4 above?

Health insurance /medical aid	1
Out of own income	2
Borrowing from friends and relatives	3
Borrowing from a financial institution	4
Sold some household goods	5
Other (specify).....	6

2.6 What proportion of your income is spent on health care per year?

Use a scale of 0 to 100 %

2.7 How would you rate the following aspects of the facility that you visited?

1 Poor, 2 Neutral, 3 Satisfactory

Availability of essential drugs / medicines	1	2	3
Availability of trained staff	1	2	3
Staff attitudes	1	2	3
Availability of medical equipment	1	2	3

2.8 How far is the hospital / clinic / doctor or traditional healer that you visited from your homestead?

Less than 1 km	1
1 km –less than 3 km	2
3km- less than5km	3
5 km or more	4

2.9.1 What was the waiting time (in minutes?)

2.9.2 What factors influenced your choice of health care provider? Rate the importance of each using a scale ranging from 1-3 1 = very important, 2 = neutral and 3 = not important.

Consultation fees at the facility	1	2	3
User fees	1	2	3
Favours/unofficial fees	1	2	3
Availability of drugs	1	2	3
Availability of trained and qualified personnel	1	2	3
Staff attitudes	1	2	3
Waiting time	1	2	3
Distance from facility	1	2	3
Drug costs	1	2	3
Severity of illness	1	2	3
Insurance cover	1	2	3
Level of income	1	2	3
Beliefs in faith healers	1	2	3
Beliefs in traditional medicine	1	2	3

## Section C

### 3.1 Where did you seek medical care 5 to 8 weeks ago?

Private sector	Doctors surgery	1
	Clinic	2
	Hospital	3
	Nurse's clinic	4
	Other (specify).....	5
Public sector	Hospital	6
	Clinic	7
	Other (specify) .....	8
Self-treatment	Bought drugs the shops	9
	Bought drugs from pharmacy	10
	Other sources of drugs .....	11
Religious	Traditional medicine	12
	Faith healing	13
	Did not go for any of the above options	14

### 3.2 How would you describe the severity of the illness?

Minor	1
Mild	2
Severe	3
Critical Condition	4

### 3.3 How much did you pay for the following items? Please specify the amounts.

Item	Amount in Zim\$
Consultation fees	
User fees in public facilities	
Drugs and medicines	
Transport costs per visit	
Favours / unofficial fees	

3.4 How did you finance the costs listed in Question 3.3 above?

Health insurance /medical aid	
Out of own income	
Borrowing form friends and relatives	
Borrowing from a financial institution	
Sold some household goods	
Other (specify).....	

3.5 What proportion of your income is spent on health care per year.

Ranging from 0 to 100 %.

3.6 How would you rate the following aspects of the facility that you visited?

1 Poor, 2 Neutral, 3 Satisfactory.

Availability of essential drugs / medicines	1	2	3
Availability of trained staff	1	2	3
Staff attitudes	1	2	3
Availability of medical equipment	1	2	3

3.7 How far is the hospital / clinic / doctor or traditional healer that you usually visit from your homestead?

Less than 1 km	1
1 km –less than 3 km	2
3km- less than5km	3
5 km or more	4

3.8 What was the waiting time in minutes?

**3.9** Which factors influence your choice of health care provider? Rate the importance of each using a scale ranging from 1-3

**1** = very important, **2** = neutral and **3** = not important.

Consultation fees at the facility	<b>1</b>	<b>2</b>	<b>3</b>
User fees	<b>1</b>	<b>2</b>	<b>3</b>
Favours/unofficial fees	<b>1</b>	<b>2</b>	<b>3</b>
Availability of drugs	<b>1</b>	<b>2</b>	<b>3</b>
Availability of trained and qualified personnel	<b>1</b>	<b>2</b>	<b>3</b>
Staff attitudes	<b>1</b>	<b>2</b>	<b>3</b>
Distance from facility	<b>1</b>	<b>2</b>	<b>3</b>
Drug costs	<b>1</b>	<b>2</b>	<b>3</b>
Severity of illness	<b>1</b>	<b>2</b>	<b>3</b>
Insurance cover	<b>1</b>	<b>2</b>	<b>3</b>
Level of income	<b>1</b>	<b>2</b>	<b>3</b>
Flexibility of payment arrangements	<b>1</b>	<b>2</b>	<b>3</b>
Beliefs in faith healers	<b>1</b>	<b>2</b>	<b>3</b>
Beliefs in traditional medicine	<b>1</b>	<b>2</b>	<b>3</b>

**End**

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