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The demand for outpatient care in a health district
in the North West Province of Cameroon:
An empirical investigation into the potential effects of
introducing community financing in public health centres.

By

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Thesis submitted to the University of London in fulfilment
of the requirement for the degree of Doctor of Philosophy in
the Faculty of Science.

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London School of Hygiene and Tropical Medicine.

October, 1994



ABSTRACT

The aim of this study is to examine the potential impact of community financing on the utilization and accessibility of health care providers in general and the government health centres in particular. A household interview survey, Focus group discussions, indepth interviews and document reviews were undertaken in one health district in the North West Province of Cameroon. 1147 households with 6656 members were visited and their heads interviewed. Of 1093 households with 3441 adult members analyzed, only 603 indicated that they had an adult sick within two weeks preceding the date of the household interview survey (HIS).

The results indicate that people who seek health care from any of the health care providers in the district spend a substantial proportion of their incomes on treatment, even in government health units where treatment is supposed to be free. Like other studies, this one found that people in the poorest quartile spend a higher proportion of their income on treatment compared to those in the highest quartile. Transport and time costs are also higher for those in the lowest quartile compared to those in the highest quartile.

Using a computer programme - ALOGIT - the demand for health care in the district if community financing were to be introduced was modelled. Community financing as used in this study refers to a situation where there is mobilization and management of resources *by the community* to support, in part or in full, basic preventive and curative health services for its members. From the data, the introduction of community financing in government health centres would result in people shifting away from them towards private health care providers probably because they value highly the quality of care given by private providers. However if community financing is introduced in government health centres and combined with an improvement of the accessibility of health care services (such as by the creation and/or reactivation of village health posts leading to a reduction in travel time and distance), utilization of public health centres would still decline, though not as acutely as if community financing were introduced alone.

Though the demand for health care in the district is estimated to be price inelastic, there are people in the community who need to borrow money or pawn their belongings to be able to pay for health care or are simply barred access to health care providers.

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DEDICATION

TO

My Wife, Mercy Muyang Tembon and Daughter, Evelyn Akuro,

My sons, Donald, George, Henry and Andy (Jr) Tembon.

My late father, Mr. Tita Tende

My foster father and brother, Mr. Peter Achu Tembon

and

My Mother, Mrs Lydia Mandi Tembon

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ACRONYMS AND ABBREVIATIONS.

BBH	Banso Baptist Hospital
APCH	Acha Presbyterian church Hospital
CDMP	" <i>Centre Departemental de la medecine Preventive</i> " (Preventive Medicine Centre).
CFA FRANC	Currency known in west Africa as the " <i>Franc de la communauté financière d'Afrique</i> " and in Central Africa as the " <i>Franc de la coopération financière en Afrique Centrale</i> "
EPI	Expanded Programme on Immunization
FGD	Focus Group discussion
GDP	Gross Domestic Product
GHC	Government Health centre
GHOSP	Government Hospital
GNP	Gross National Product
GORC	Government of the Republic of Cameroon
GTZ	" <i>Deutsche Gesellschaft für Technische Zusammenarbeit</i> " translated to mean the "German Agency for Technical Co-operation"
HHINC	Household income
HIS	Health interview survey
HISF	Health interview survey form
IMF	International Monetary Fund
LAP	Life Abundant programme
MOH	Ministry of Public Health
NGO	Non-governmental Organisation
PHC	Primary Health Care
PMI	" <i>Protection Maternelle et Infantile</i> " (Maternal and child care centres).
PPS	Probability Proportionate to Size
PRED	Unstandardized Predicted values of residuals
PRHC	Private Health centre
PRHOSP	Private Hospital
RESID	Unstandardized residuals
SELF	Self-care
SESA	Survie des enfants du Sud et Adamaoua
SRESID	Studentized residuals
TRA	Traditional Healer
UNICEF	United Nations Children's fund
USAID	United States Agency for International Development
WHO	World Health Organisation
ZRESID	

CHAPTER 1

BACKGROUND OF THE RESEARCH PROBLEM

1.1 INTRODUCTION

Governments in most developing countries including Cameroon have been in economic difficulties for some time now (World Bank, 1993) and have been finding it difficult to mobilize the resources required to pay for drugs, health workers and other elements which are required to provide effectively the much needed primary health care services (Akin *et al.*, 1987). These governments have been unable to finance and expand the health care delivery system especially to rural areas which need the primary health care services most.

Debt repayments by African countries consume on average 27% of their export earnings (WHO, 1988a) but when all the developing countries are taken into consideration, the debt service payments represent on the average about 25% of their export earnings (LobLevyt, 1990). The economic situation of the less developed countries has been discussed in details by Chernomas (1990) who claims that there is no lack of capital production but rather there has been mismanagement of the available capital and capital flight in most of these countries. The above figures are averages and are consequently unable to reflect the very poor situations in which some of the African countries find themselves.

The poor economic situation has affected not only governments but also individuals residing in these countries. The World Bank has estimated that the real per capita income has declined in Africa by 15% in the last decade (World Bank, 1989). This decrease in the real per capita income hits the poor harder than the rich. Cornia (1984)

has indicated that a two to three per cent decrease in average incomes can easily result in a 10 - 15 per cent decrease in the incomes and an even larger reduction in disposable income of the poorest groups in society.

With particular reference to the health sector, most governments of the developing world especially in some Sub-Saharan African countries have seen their budgetary allocation to support health services decrease each year in real terms and in relation to total budgets (Kafing, 1990, Abel-Smith, 1986). In the period from 1972 to 1982, for example, the public expenditure allocated to health in some 20 African countries fell from 6.1% to 3.0% (WHO, 1988b) and the average per capita publicly financed health expenditure fell from US\$9.50 in 1982 to US\$8.70 in 1985 though an increase to US\$9.90 was seen in 1987 (Ferroni *et al*, 1990). While stressing effectiveness and efficiency, the World Bank, (1993: 67) made it clear that

" Governments in developing countries spend an estimated \$21 per capita on health, for a total of about \$81 billion. It is estimated that only a little more than \$1 per person, or a total of \$5 billion goes for cost-effective public health measures" .

In an attempt to find out the impact of the economic situation on the health sector, health projects sponsored by the United States government in Central America and Africa were reviewed for sustainability by Bossert (1990). He concluded that the projects in Africa were less firmly sustained than those in central America due to the *poor economic* and political climate in Africa. What then is the economic situation of Cameroon? Is it one that is sound enough to be able to sustain health projects? The next section and chapter 5 attempt to answer these questions.

1.2 AN OVERVIEW OF CAMEROON'S ECONOMIC SITUATION

Early in the 1980s, Cameroon, a middle-income country in Sub-Saharan Africa, had a seemingly stable rate of economic growth. As the mid-1980s approached, the economy started declining as shown in Table 1.1.

TABLE 1.1: CAMEROON'S GDP AND GNP GROWTH RATES, (1980 - 1990)

Year (1)	Real GDP growth rate (%) (2)	Average annual GNP/capita growth rates (%) (3)
1980	15.6	9.9
1981	4.3 ¹	9.5
1982	17.5 ²	2.4
1983	-2.0 ³	4.6
1984	5.8	2.4
1985	7.6	8.0
1986	8.0	5.8
1987	-10.4	-3.8
1988	-7.7	-10.4
1989	-3.4	-1.0 ⁴
1990	-2.4	-4.0 ⁵

Source: (2) Derrick, (1992).

(3) UNICEF (BIMU), 1990.

¹ Calculated using data from World Bank, 1982, 1983.

² Calculated using data from World Bank, 1983, 1984

³ Calculated using data from World Bank, 1984, 1985.

⁴ Calculate with data from World Bank, 1990, 1991.

⁵ Calculated using data from World Bank, 1991, 1992.

GNP per capita which unfortunately has no information on its distribution in the community has been considered as an indicator of health and of human welfare. It has been indicated by WHO that " per capita GNP can also serve as a general measure of human welfare - that is, of 'health' in the very broadest sense." (World Health Organisation, 1981; Waaler, 1984; Musgrove, 1987). According to the World Bank,(1993) the growth rates of per capita GNP declined from 8% in 1985 to -10.4% in 1988. Though the GDP growth rate is still negative, it is very slowly improving. However, when this is considered in conjunction with the increasing population growth rate, the situation is one of a worsening economic crisis (Appendix 1.1).

By the end of 1990 the long and short term loans of the Republic of Cameroon had amounted to about US\$5.3 billion (°) and the debt servicing was estimated to be US\$710 million (Editorial, Challenge Hebdo, 1992). Inflation in Cameroon is not high and one is still able to buy things from shops while civil servants have been having their regular salaries though this has of recent changed with the recent devaluation of the cfa franc (CFAF). Notwithstanding the above, poverty especially in the countryside is rising.

1.3 IMPACT OF POOR ECONOMIC SITUATION OF CAMEROON ON THE HEALTH CARE DELIVERY SYSTEM.

In Cameroon, the state has been involved in financing, planning and managing health services and other health related activities but as the economic recession deepens, the Ministry of Public Health has suffered a reduction in its share of the reducing public cake.

° The conversion from the local currency (Francs CFA) was based on an exchange rate of 290 Frs CFA to One United States Dollar in 1990 (US\$1 = 290 Frs CFA).

The poor economic situation of Cameroon has resulted in insufficient health care financing but there is also an international dimension to the health care financing crisis seen in Cameroon. Donors are reluctant to contribute to recurrent cost but willingly contribute to capital investments (¹) (Gray, 1986; CILSS\Club du sahel, 1980). There is a general failure of governments, in situations of this nature where projects are sponsored by their "aiders - the international donors", to analyze the future recurrent cost implications of any capital investment and to assess whether these costs will be affordable given the available financing sources (Over, 1991). It has been stressed by WHO that "aid could constitute a 'poisoned gift' unless its composition was very close to pre-identified domestic requirements ..." (World Health Organisation, 1984).

Many reasons have been advanced to explain the inability of governments in developing countries to evaluate future recurrent costs implications of a donor-supported investment. Among these reasons are firstly, the fear by the government of a loss of the much needed aid since they are in most cases placed in a situation of 'either you take as given or leave it'. Secondly, the belief that the benefits from the investment will call forth adequate community finances; and thirdly, the inducement in most cases offered to officials of the Ministry of Public Health and other government departments who are directly concerned with the investment - this inducement can be in the form of per diems, salary increases etc (Gray, 1986).

In an effort to tackle the health financing crisis, the Cameroon government has substantially reduced its investment for some years now (see Table 5.2) but this has not solved the problem of recurrent costs of the health service which requires a continuous

¹ Just a few years back, inspite of the fact that there were already an existing university teaching hospital in the capital city, foreign governments did not hesitate to "help" in the construction of TWO new high-technology hospitals in the Capital city and another town of the country. The university teaching hospital was already having a problem of finances but this did not stop the foreign governments from going ahead with their "help".

flow of a huge amount of resources. This decline in funds available to the health sector has resulted in uncompleted health facilities being abandoned and left to deteriorate without staff or equipment. There is poor or inexistent supervision, neglect of the maintenance of buildings, chronic shortage and lack of repairs or replacement of basic equipment. There is no financial advancement for the health personnel (*) leading them to become more dispirited, demoralized and corrupt (See Appendix 1.2). In Cameroon, this demoralization is also evidenced by the fact that most of the staff time is not efficiently used. In a study undertaken by a USAID-aided health project, it was found out that only 27% of nurses' time was spent in productive work (Ministry of Public Health/SESA, 1990). In the final analysis, the low morale of the health workers and the fact that the health units are understaffed and/or poorly supplied might discourage community utilization of the health services.

To make matters worse, the health system in Cameroon tends to favour the maintenance of the hospital system located mostly in urban areas at the expense of the health units in the rural areas. The World Health Organisation (1987a) evaluating the strategy for Health for all by the year 2000 in Cameroon, says that

"it is however no exaggeration to say that vast sums are being spent on the construction and operation of large-scale health facilities for curative care above all."

The urban bias in Cameroon is contrary to the findings in other countries that primary health care can do much to improve the health of the rural population especially that of women and children (Gwatkin et al. 1980; Wang, 1977; Kodjo and Carrin, 1992).

Another strain that is put on to health expenditure is the high proportion of the budget that is reserved for salaries. Even though from 1986 to 1987, the total health

*. This is as a result of the economic setback suffered by the country. In years gone by, the civil servants almost always had a salary increase every two or three years. This setback has resulted in salary cuts not only for health workers but also for other civil servants. The situation has worsen so much so that civil servant now go for months without salaries.

expenditure in Cameroon declined by 10.7%, salaries were reported to have risen to 99% compared to 83.8% in the 1988/89 financial year though it was on the average 79% of recurrent expenditures during 1980-85 (Ogbu *et al.*, 1992). After the staff salaries are paid, very little budgetary allocation is left for the actual running of the health services. For example, in the period from 1980 to 1985, only 1% of recurrent expenditures was available for maintaining vehicles, supporting immunization, buying other supplies and recurrent items (Ogbu *et al.*, 1992).

Table 1.2 shows real per capita government health allocation and annual increases for the years 1981 to 1990.

TABLE 1.2: EVOLUTION OF CAMEROON'S ANNUAL POPULATION AND MINISTRY OF PUBLIC HEALTH BUDGET AND EXPENDITURE IN CFA FRANCS (CFAF)

Year	Population	% Annual Populatio Increase	MOH expend x 1000 frs	% Increase of health budget	Health expend/ capita	Annual growth rate of col. 6. (7)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1981	8965700	0	10182929	0	1135	-
1982	9205200	2.6	13827986	35.8	1502	32.3
1983	9491000	3.1	17456737	26.2	1839	22.4
1984	9790900	3.2	23023227	31.9	2351	27.8
1985	10106600	3.2	26747554	16.2	2646	12.5
1986	10446400	3.3	27753285	3.8	2656	0.38
1987	10857100	3.9	25622420	-7.7	2359	-11.2
1988	11180600	2.9	23976343	-6.4	2144	-9.1
1989	11540300	3.2	27873683	16.2	2415	12.6
1990	11899600	3.1	22756841	-18.4	1912	-20.8

Sources: col(2) Ministry of planning and Regional Development, (1985).

Col (4) Ministère de la santé publique du Cameroun. (1992)

Col(3,5,6,7) Calculated by author using 1981 as the base year. 1981 was chosen following the availability of data.

Any expansion or even improvement of the services in rural areas needs to be financed. Unfortunately, there is no evidence that this favoured status of the urban areas

will change in the near future. The search for alternative financing strategies to complement that of the government is imperative.

1.4 ALTERNATIVE FINANCING METHODS: COMMUNITY FINANCING.

Many strategies have been proposed to solve the health care financing crisis. These include the re-allocation of existing resources like shifting them from urban to rural areas; from hospitals to rural health centres; from physician training to nurse training according to their cost-effectiveness (Vargas-Lagos, 1991); more donor contributions; private sector financing and most important, user fees (Akin *et al.* 1987; Biesinger, 1989).

On the whole, given the current constraints in government's public budget and the government's unwillingness to re-allocate radically its resources to ensure that the social services are distributed justly, it might be necessary to generate additional resources or use the little available in more efficient ways. Encouraging the private sector to provide health care appears to be one option to reduce the pressures being exerted on public finances at this time of economic crisis. The private sector is there, in most cases to make profit so as to be able to expand and maintain their services (Bennett, 1992). Should this option be accepted, those unable to pay will be unable to receive services. The government might simply be subsidizing the well-to-do who use the private sector.

Another strategy might simply consist of asking users of health care to pay for what they consume. This strategy appears to be more attractive and feasible though it has been seen that in many African countries where fees have been charged, there has almost been a reduction in the utilization of health services (Waddington and Enyimayew, 1989, 1990; Yoder, 1989; Bennett, 1989; X de Bethnue *et al.* 1989). This appears to suggest that with fees there are disincentives, and success with any payments at the point of service

will require counteracting incentives. If communities are given a say in the way the resources are used locally and in the way health services are delivered and managed, there might be a different reaction to the introduction of fees. The involvement of the community can only be possible with community financing. Community financing as used here refers to a situation where there is mobilization and management of resources *by the community* to support, in part or in full, basic preventive and curative health services for its members (see appendix 1.3 for a detailed definition). There are still many decision-makers who are resistant to the implementation of community financing at the health centre level and the management of these resources by local communities. However this resistance might indicate that the procedures are not understood by the public. In a recent evaluation of a Cameroon Ministry of Public Health - USAID health project (Godfrey *et al.* 1991) this position was summed up as follows:

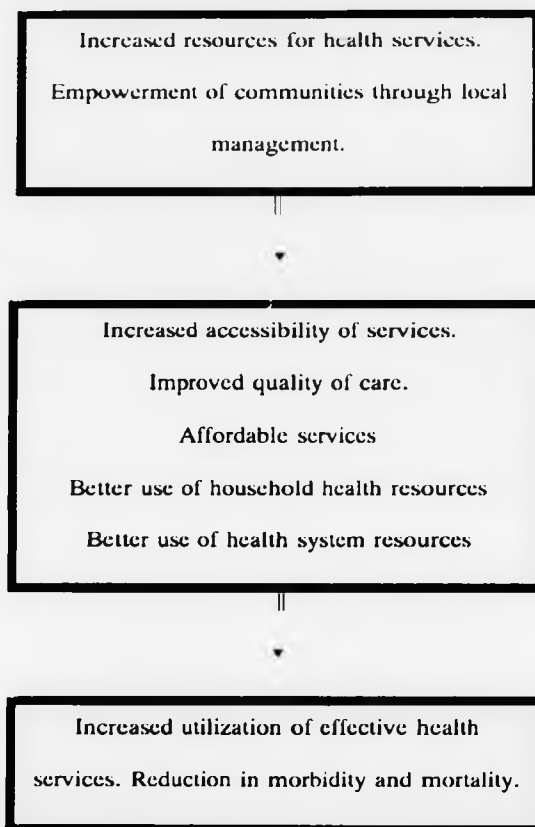
" The health personnel and public accept in general the new health care initiative, but many Ministry of Health personnel and community members do not fully understand the new system and all its administrative procedures"

If the resources got through community financing are reinvested in the health unit and all other things being equal, it is believed that the quality of care delivered will be improved. With improved quality of care, it is in principle believed that many more people will consult in the health units (Figure 1.1). Furthermore, underlying this option of community financing is the fact that local organizations, communities have to take collective action which is consistent with the World Health Organisation's emphasis on primary health care (World Health Organisation/UNICEF, 1978).

It is clear that the health resources available to the Cameroon government are simply inadequate to solve the numerous health problems at all levels. In Cameroon several possibilities aimed at solving the problem of Health care financing among which

is Community Financing have been proposed (Owona *et al.*, 1990).

Figure 1.1: THE IMPORTANCE OF COST-SHARING



Source: UNICEF (Bamako Initiative Management Unit - BIMU), (1991).

Community financing includes charging for drugs, which is already widespread and accepted by the population, and outpatient service fees. However, experiences from other developing countries has indicated that charging only for drugs may not be the solution to the fiscal problems facing the health sector (Griffin, 1988).

Following the reorientation of primary health care which will be discussed in Chapter 6, it has been suggested that community financing should be instituted at all

levels of the health care delivery system starting with the health centres. In 1990, the desirability of recovering costs by charging for drugs in Cameroonian public health units was made official by an act of Parliament (law Number 90 - 62/LF) of 19th December, 1990. This law which was specifically made for drugs granted a special waiver to public health units in financial matters. In sections 1 and 2 of the said law (*), it was stated that

" Public health units shall be authorized to recover the costs relating to the sales of drugs in their generic form.

.....Proceeds of such sales shall be subject to decentralized management which will enable health units to replenish their stock of products and purchase minor equipment "(Law No.90 - 62 of 19.12.90; articles 1 and 2).

The above mentioned act of Parliament had been preceded by the formation of a Bamako Initiative team at the central level of the Ministry of Public Health. This was to serve as a basis for a National Revolving Drug Fund.

Could the management of the fees by the community itself be one way of getting rid of the disincentives which result in a reduction of health service utilization noticed when user fees are introduced as mentioned above? The answer to the above question will depend on the community's willingness to pay. One important consideration with this willingness to pay concept is the responsiveness of demand for health care from public health units to introduction of community financing.

The main aim of the study is to determine the effects of community financing on use of health care services and particularly how the health care providers are chosen. This study is as a prelude to the implementation of community financing especially in rural areas.

* For a full text of the law, see the Official Gazette of the Republic of Cameroon, 31st year - No. 1 (supplementary issue) of 1st January, 1991; page 60.

1.5 RESEARCH QUESTIONS.

Preventive health services have been free at the point of service in hospitals and health centres in Cameroon. Theoretically, medical treatment excluding drugs, in health centres is free at the point of delivery while minimal payment had been in operation at the hospitals for a long time now.

With the present tightly constrained resources, Cameroon will be unable to continue with free health care in the health centres. This will require innovations with regard to the methods of resource mobilization. To my knowledge no study has been carried out in this direction in Cameroon except for the one experimental longitudinal study carried out in the Adamaoua Province (Litvack, 1992). The results cannot be transferred to the North West due to the socio-cultural and economic differences between the Provinces which might have influences over the predisposition to use health services. The people in the Adamaoua Province are predominantly Moslems, cattle rearers and are French-speaking. This is in direct contrast to the fact that most North Westerners are Christians, farmers and are English-speaking.

Since no study of this nature has been carried out in the North West Province, there appears to be a void of basic information which prevents the development of any effective community financing policy in the Province. This study aims at filling this void.

Since services have for a long time been provided free at the point of service in public health care centres, it would be necessary to answer some questions before the introduction and/or increase of community financing. The questions include the following.

- 1) How do people presently use the different health care providers?
- 2) How is the use of the different health care providers affected by individual factors such as socio-economic levels, income, socio-cultural perceptions and education?

- 3) How is the use of the different health care providers affected by health service's characteristics such as distance, time for treatment and cost of treatment?
- 4) What would be the effects of community financing on the utilization of public health centres by different socio-economic groups and especially the poor, taking into consideration answers to questions one to three above?
- 5) What is the revenue raising potential of community financing?

1.6 AIMS:

The aims of the study are:

- To determine the factors that affect the choice and utilization of health care providers in a health district.
- To make policy recommendations in the area of community financing and in particular whether or not it should be introduced in health centres.

1.7 SPECIFIC OBJECTIVES.

The specific objectives of this study include the following:

- 1 - To determine the base-line health care utilization patterns in the health district.
- 2 - To determine the influence on the choice and levels of utilization of health care providers of individual factors such as household income, education of household members and household size.
- 3 - To determine the influence on the choice and level of utilization of health care provider of health service characteristics such as price of services, distance from households, travel and waiting time to seek care.
- 4 - To explore the opinions of community members about community financing.

- 5 - To predict the likely impact on utilization of introducing community financing of health care in the health district.
- 6 - To estimate the revenue that can be raised at different price levels.

1.8 ORGANIZATION OF THESIS.

After having discussed the background to this study and the justification for it above, the rest of the dissertation is arranged as follows:

Chapter 2 reviews the literature on community financing and the demand for health care. This study has reviewed this subject from two angles which include (i) the factors that influence the choice of health care providers, (ii) the effects of community financing on the utilization of the health care provider.

Chapter 3 reviews the literature about the methodological issues related to household interview surveys and focus group discussions.

Chapter 4 discusses the qualitative and quantitative methodologies used in the study. It also discusses the conceptual model used in the study. It is set within the consumer/producer model in which the household provides its own care or seeks it from others.

Chapter 5 looks at the background of the research setting. Particular attention is paid to the organisation and financing of the health care delivery system, and the economy of Cameroon. An overview of the North West province and its health care delivery system is given. The chapter ends with a description of the Ndop health district, the site of the study.

Chapter 6 presents the descriptive analysis which summarise the survey responses from the household survey and focus group discussions as related to individual and

household characteristics. This is aimed at getting a better understanding of the expenditure made at the health facilities and of the utilization pattern of the respondents.

Chapter 7 discusses the influences of the health service characteristics on the use of the different health care providers and the opinions of the community members about community financing. It starts with a discussion of the knowledge of the existence of health care providers in the health district. This is followed by a discussion of the decision-making process and the decision criteria used in choosing a health care provider. The opinions and reactions of the participants to private financing of health care are discussed as well as the exemption mechanisms in the area. The chapter ends with an exploration of the influences of some health service characteristics on the choice of health care provider.

Chapter 8 presents the regression model which analyses the factors that influence expenditure by people in support of public health centres. The results of the Ordinary Least Square (OLS) model are presented. The OLS model is limited to only those who used the government health centres, since the emphasis of this study was on these health units.

Chapter 9 presents the results of the multinomial logit model (MNL) of the demand for health care. The role of choice in the health care market is discussed: looking in detail at the choice of health care provider in the health district where particular attention is paid to those factors that affect the different choices. The results from the MNL model are then used to simulate the likely impact of changes in prices to respondents in government health centres on accessibility of health care. The focus of this simulation is on the changes in the price-elasticity of demand.

Chapter 10 discusses the findings of the study especially the effect of community financing on utilization and accessibility of health care providers. Chapter 11 presents the

summary of the study, the conclusions that can be drawn from the study as well as the policy implications. Recommendations that can be arrived at from the study are also presented.

1.9 SUMMARY.

In the presence of an economic crisis with a diminishing public sector per capita expenditure for health care, increasing population, and donors unable to fund recurrent cost, government is unable to implement its health policy of extending essential health care to all. Additional resources to finance the health system must be sought. This is needed to maintain the present system and expand it to rural areas.

Community financing is one such source which has been proposed. Since the government has indicated its political will to implement such a policy in the health sector, since donors active in the health sector will sooner or later hand over their health projects to the Ministry of Public Health and since the experience of working with the community has indicated it can be a source of finance for the health sector, there was therefore need for a study of this nature to find out the effects community financing will have on utilization and accessibility.

CHAPTER 2

LITERATURE REVIEW I:

PRIVATE FINANCING STRATEGIES (USER FEES), COMMUNITY FINANCING OF HEALTH CARE, WILLINGNESS AND ABILITY TO PAY AND MODELLING THE USE AND DEMAND FOR HEALTH CARE

2.1 INTRODUCTION

As far back as 1978, the world community had foreseen the crisis in taxation-based health care financing. Governments had consequently been cautioned during the Alma-Ata conference (World Health Organisation/UNICEF, 1978) that

"...coverage of PHC cost through Taxation may be quite impracticable and totally inadequate in predominantly agricultural societies..[like in the developing world]".

Governments had also been advised that even if something had to be done with respect to financing Primary Health Care, it had to be "at a cost that the community and country can afford....." (World Health Organisation/UNICEF, 1978). This indicates that governments were supposed to already think of alternate ways to finance primary health care and not depend entirely on only general taxation, though it appears to be one of the simplest ways of relating contributions to income. The impracticability of Primary health care total cost coverage through taxation as indicated in the Alma-Ata declaration can be attributed to the low rate of tax collection seen in most developing countries where tax is unpopular.

Since the main theme of this study is the effects of community financing on health care demand/utilization, this chapter looks at the literature from original published papers, from economic studies on the demand for health care, and from region or region-specific

studies carried out by governments or donor agencies and international organisations.

First of all, the literature on the financing strategies for health care recurrent cost is reviewed, followed by that on user fees. The literature on community financing is then explored starting with the definition and followed by the management of the resources from community financing.

Secondly, a review of econometric demand studies and results of cross-sectional health care utilization studies carried out mostly in developed countries are discussed.

2.2 FINANCING STRATEGIES FOR HEALTH

CARE RECURRENT COST.

De Ferranti (1985) indicated that the share of the government budget reserved for the health services had fallen in most developing countries. At the same time it was estimated in 1984 that developing countries required an additional 50 billion US dollars annually (de Ferranti, 1985a). This situation is unlikely to change in the near future and unless alternate sources of finance are sought, recurrent budget constraints will limit new investments in the health sector.

The decline in the health care budget as a proportion of the national budget has resulted in a lowering of the quality of care rendered and to inefficiencies in the health sector. Visible signs include the decrease in the salaries of health personnel, the reduction in the drugs budgets leading to shortages and finally a decrease in the demand for health services (UNICEF, 1990a).

Presented with an economic crisis as it is the case in most developing countries (World bank, 1994), the resources of the public and private sectors have to be mobilised. There is a growing literature relating to alternative financing strategies for health care

delivery systems especially in sub-saharan Africa (McPake, 1993, Korte *et al.* 1992). The World Bank (Akin *et al.* 1987) has been in the forefront proposing the re-allocation of resources, institution of health insurance and user fees as being strategies that can be used to reduce the financial resource gap in the health sector. These strategies can broadly be grouped into two main sources, the public and private sources. The sources do not change whether the health services are publicly or privately provided. However the decision to either finance health services privately or publicly is linked to equity, efficiency and how effectively the resources can be mobilized. Another option is that of improvement of the efficiency of services by use of generic drugs rather than brand names ⁽¹⁰⁾ and a reduction in the misuse of drugs. The system can be further made to be more effective if the prescribers are made to be more rational; giving only the most essential drugs for a particular case (Foster, 1991). However attempting to improve efficiency might require additional resources (Gray, 1986).

2.3 THE USER FEES DEBATE.

Many authors have undertaken an overview of private health care financing in developing countries (de Ferranti, 1985, Dunlop, 1983, Stinson, 1982, Stinson *et al.* 1987). Developing countries like Rwanda (Shepard *et al.* 1987), Senegal (Sene, 1986), Zaire (de Bethnue *et al.* 1989, Moens, 1990) and Kenya (Mwabu *et al.* 1986) are some examples of countries that have instituted user fees. In 1988 the World Bank proposed a financing strategy for Kenya based on high levels of user charges to recover some 20 - 30% of government recurrent cost (Dahlgren, 1990). The Bank justified the policies it put

¹⁰ The effectiveness of the health care delivery system has been greatly improved in the North West by the availability of essential generic drugs within the drug revolving fund. The drugs here are mostly generic and are bought from low-price sources using competitive bidding. At the National level there is a move now to create a Centre for the Supply of essential drugs (CAME).

forward to developing countries in economic terms but there are several value judgements that underlie these bank proposals. Several of these value judgements have been discussed by Gilson (1988).

i) ARGUMENTS IN FAVOUR OF USER FEES.

On the one hand, those who support user fees claim that the institution of fees will conserve the scarce public funds and promote efficiency in the form of cost-effectiveness (World Bank, 1993) and better responsiveness to consumer preference (Akin et al. 1987; Jimenez, 1987).

The introduction of user fees is also seen by proponents as a way of strengthening the whole health system and making it more accessible to the poor (Jimenez, 1987, Bekele and Lewis, 1986). It is argued that paying for the services will reduce the difference that exists in quality of care between the urban and rural health units. The poor would see their situation improving on condition that they have the means to pay for the services (Mwabu, 1987). It is further argued that the fees paid will either be used to extend health services to rural areas or will allow governments to divert more resources to the rural areas with poor access to health services (Abel-Smith, 1986) making them more accessible than is the situation when no fee is charged. Implicit in the above is the assumption that user fees will generate sufficient revenue that can then be used.

With user fees, differentiation among severity of illnesses may be done. A person who is not severely ill or not ill at all may be discouraged to use the service compared to one who is severely ill. Carrin (1987) cites reasons for supporting the institution of user fees and carries the argument one step further to qualify conditions under which he thinks people will accept to pay for modern health services. He says that " people would also like to pay for modern health care which they know, or judge to be more effective than traditional medicine", that is judging the quality of service to be improved or better.

Jancloes *et al* (1985) goes further to say that

" People will be willing to pay for services which they perceive to be useful and for which a concrete product is provided in return, such as common drugs, vaccines, cleaning equipment, and volunteer services".

The above view has also been expressed by other authors like Vogel (1988), Kloos *et al*, (1987) and UNICEF (1990).

User fees have been greatly supported based on findings that some community members in developing countries are already paying for health care from private services - NGOs, traditional healers, pharmacists (Akin *et al*, 1986, Parker, 1986, Mwabu, 1986, Coreil, 1983, de Ferranti, 1985, Meyer, 1985). This money paid by the consumers to the private sector, it is argued, could be "captured" by the public sector to reduce its financial burden. The money recaptured could then be used to extend services with a greater impact to rural and peri-urban areas (Abel-Smith, 1986a).

Providing free care ends up subsidizing the wealthy leaving fewer resources for the poor (Akin *et al*, 1987). For example in 1983 - 84, hospitals and health centres in the towns and plains in Lesotho where the richer people live received 84% of the budget of the ministry of Health (Akin *et al*, 1987). The poor in rural areas have consequently been pushed to use alternate and more expensive care than the well-to-do in the urban area where accessibility to public health units is easier.

It is further argued that equal treatment of similarly placed persons like those in the same income group is more likely in a fee paying system than in a free one. It may be more possible to target the poor by fee reduction or even forgiveness in a fee paying situation than in a free system. More of the advantages often put forward by supporters of user fees include the fact that user fees may discourage over-prescription of drugs, stealing and spoilage since the providers become more cost conscious. These fees may also be used to link revenue to performance. User fees may provide incentives for health

staff to perform better by signalling the demand for health services and getting rid of other rationing methods which would have resulted in economic loss. However, Fabricant, (1992) quoted Vogel (1989) who discussed the 25% of the revenue indicated to be held in health facilities in Ghana after user fees introduction and doubted if this was a strong enough incentive to warrant the staff improving the quality of care they rendered. User fees will also serve as incentives for the patients to make a concrete choice about where they intend to spend their money (Griffin, 1988; de Ferranti, 1985; Akin *et al.* 1987).

ii) ARGUMENTS AGAINST USER FEES.

On the other hand, those against user fees argue that because the rationing criterion will be the ability to pay, user fees will have negative distributional effects which might outweigh any efficiency gains (Gertler *et al.* 1987; Gertler and Van der Gaag, 1988). The poor especially those in poor countries, it is argued will be barred access to health care since they do not have money to pay for the services (Sorkin, 1986). In Kenya for example, reasons given for stopping user fees in health units included a reduction in access to health services after the introduction of the charges (Epstein *et al.* 1991) and popular uprising.

Gertler *et al.* (1987) concluded from their study in Peru that the poor are more affected when charges are introduced than the rich. Since supporters of user fees say that user fees deter those with frivolous complaints, it might simply be the poor who drop out not because of frivolous complaints but because they are unable to afford the fees. In any case, the poor especially in rural areas have limited accessibility to public health facilities and this has often been blamed for the inequity in health care payments between the urban and rural areas.

Tax-based systems of paying for health care (in contrast to user fees) it is argued, allow for subsidies from the healthy to the sick and from the wealthy to the poor (Green,

1990). However Jimenez (1987) is against the financing of health services through taxation because he says that it is inequitable since some indirect taxation schemes are regressive.

The arguments that user fees will allow government to divert more resources to rural areas reflect a misreading of budgetary procedures in most countries. Health budgets rarely begin with a fixed amount handed in whole to the Ministry of health to be divided across levels. In most cases, the overall total is built up from several subtotals. Furthermore, even not withstanding the budgetary procedures, Creese (1991) reviewing experiences in health financing found no large-scale expenses of fees to improve either quality or accessibility of services in order to compensate for the effects of community financing.

The assumption that people who are already paying for private health services will pay for government health services is perhaps true but does not appear to be convincing enough. It cannot be assumed that because an individual has paid for treatment from a traditional healer, he will necessarily pay the same to a government unit. He might have paid because of his cultural beliefs (Stanton and Clemens, 1989). In most cases, payments to traditional healers are not always done immediately after the service as required in the public health care delivery system and might not necessarily be in cash. The payment system for traditional medicine may make use of in-kind payments rather than money which may be more difficult for rural populations to get. The traditional healer may also be more flexible to adjust prices to the means of the patients who in most cases are well known to the traditional healers. This flexibility is impossible in public health units.

Society accepts the fact that there are poor people who would be unable to pay any user fees and should be protected (from the effects of fees). The World Bank confirms this by indicating that ".....it is plausible to assume that use by the very poor is reduced

more than average. For that reason fee systems must be designed to protect the poor" (Akins *et al.*, 1987). Evolving a system whereby fees are collected and at the same time protecting the poor will involve a lot of administrative skill and cost. Gilson (1988) wonders if this will not place a great demand of resources on the health system which might end up recovering cost that is insufficient to be used for service improvement.

2.3.1 EQUITY IMPLICATIONS OF USER FEES.

Equity refers to issues of social justice (Gilson, 1988) and can either be referred to as being horizontal or vertical. Horizontal equity is said to occur when those with identical relevant characteristics (eg incomes, age, sex, geographical location etc) are provided the same amount of treatment. On the other hand, vertical equity refers to a situation where those with similar incomes pay equal amounts, or those with *unequal* needs have *unequal* utilization/treatment. The stress put on either of the two types of equity by a government depends on its policy goal. A government with equity as a policy goal will stress vertical equity while that with efficiency as its goal will stress horizontal equity. In this study, the important idea about equity is that of treating all people with equal needs equally. Treatment in this case does not refer to only medical treatment but also refers to equal access to health facilities and equal utilization for equal needs. Needs as defined by Gilson (1988) include the " presence of sickness or the vulnerability to sickness".

The World Bank (Akin *et al.*, 1987) thinks of equity as being equal access for equal needs and appears to stress efficiency as opposed to equity (Gilson, 1988). Musgrove (1986a) quoting the U.S.Presidential commission defined equity in terms of access as being:

"an adequate level of health care for everyone, without economic difficulties causing people who need care to forego it or to postpone it until their medical problems are much worse".

Musgrove goes further to make a distinction between medical equity related to the equal chance of having health care when needed and equity of financing which involves need, supply and demand for health care.

The equity implications of user fees has been of concern for several reasons. Some people have argued that user fees are regressive (Gertler *et al.*, 1987) while others have indicated that institution or increase of user fees might prevent the poor and the sick from seeking health care (Gilson, 1988; Stanton and Clemens, 1989; Foster, 1988; Gertler, Locay *et al.*, 1987).

The equity situation is made worse if the charge is the same for the wealthy as for the poor especially in countries where most of the government revenues come from indirect taxation. This will be a burden on the poor as it would represent a larger proportion of their income (Gertler, Locay *et al.*, 1987). Saying that instituting the same prices will present a greater burden on the poor might be true because it has been indicated in a WHO publication that those living in poverty are at risk in health terms (Backett *et al.*, 1984). The chances of being sick will therefore be higher in rural than in urban areas. Those in rural areas might consequently have a tendency to use services more and therefore pay more. In Latin America, Musgrove (1983) found that the rural people had higher health expenditures than people in the same income group but living in urban areas. In a free system, the poor usually do not have their fair share while the rich benefit more from the subsidies (Jimenez, 1987). The urban health facilities are subsidized from the general taxes paid by people including the poor in rural areas with little or no access to basic health care. The fact that rural households are less wealthy than their urban counterparts but are having to pay more for health care because of limited accessibility to public facilities is inequitable.

2.4 COMMUNITY FINANCING OF HEALTH SERVICES

2.4.1 DEFINITION

Community financing has been defined differently by different people. Russell and Reynolds (1985) define it as being

" the mobilization of resources *by the community* to support, in part or in full, basic preventive and curative health services for its members".

This is a concerted effort for the benefit of people who share a common interest. This implies the involvement of the whole population in the organization of the functioning scheme (Abel-Smith and Dua, 1988). This definition clearly excludes free market purchase of medical care as well as self-treatment, unlike what was assumed by Stinson (1982). Abel-Smith and Dua (1988) indicated that

"unless these too [free medical purchase of medical care and self-treatment] are a part of the integrated or comprehensive action evolved jointly",

free market purchase of medical care cannot be included in community financing. Carrin (1987) goes further to add the modalities of community financing and defines it concisely as

" direct financing of health care by rural households in villages or by households in distinct communities within urban areas; financing can be arranged either by payments upon receiving health care or by some form of prepayment or local health insurance".

In the above definition, it is understood that communities have an organized role in the support for and management of services. Support will effectively cover direct contributions by users or households to the financing of health care (Jarrett and Ofoosu-Amaah, 1991). Contributions in this case refer to either prepayment for future use of health services (de Ferranti, 1985, Chabot *et al.* 1991) or user charges for health

services received either from sale of drugs (Carrin, 1987) or from consultations or from both (Olusoji, 1989).

Miller (1989) discussing community financing says:

" Community financing now refers to a decentralized scheme of financing via the community, rather than being limited to financially autonomous community health schemes".

In community financing, a premium or fee decided upon by the community may have to be paid to the health unit whenever one visits the health unit for treatment. Community financing is therefore not a method of financing health services but simply refers to the level at which financing and managing of the resources (by the community) takes place. Hence whatever is applicable to user fees or user charges is by implication applicable to community financing. A distinctive feature of community financing systems, however, is that the control of the revenue collected remains at the local level, either with the basic health unit or with the local community. The management of the resources is done by the local community. User fees instituted by government, on the other hand, refer to systems or modalities in which the beneficiaries pay directly for the use of services such as through a consultation fee, drug charges or both (Bennett and Musambo, 1990) **BUT** the revenue, unlike in community financing, is sent to a higher level which caters for the health unit by way of a budget and determines the level of fees charged without consultation of the population.

2.4.2 THE COMMUNITY FINANCING DEBATE.

Advocates of community financing have supported it on grounds that it increases the self-help ability of communities (World Health Organisation, 1991, Korte et al. 1992).

It serves to demonstrate community commitment and acceptance of services especially as the preferences and demands of consumers can be quickly met at the local level. Financing through the community will probably motivate the community to be actively involved in the affairs of the health services and participate actively in other community activities (Abel-Smith, 1985, Yacoob 1990). The health care worker will also be more motivated to collect fees. This motivation can be greatly reduced if all the fees collected by the health workers, is seen as a health tax (Carrin, 1987) and has to be transferred to the government treasury. Motivation of both staff and community members will only be possible if community financing is regarded not only as a cost-recovery method but also as an element of community participation (Yacoob 1990).

Community financing of government health services might also have benefits such as improvement in efficiency and quality of services, the reduction in opportunity cost such as by reducing waiting time and raising of revenue to recover some cost. These benefits of community financing according to Creese (1991) would appear to have been exaggerated.

Some other critics have equated community financing to a lack of political will. These critics include Stinson (1984)

" [who] think it is but rather a diversion for governments lacking the political will to generate new national resources or to re-allocate existing ones."

Institution of community financing might also result in undesirable effects such as deterring or delaying the utilization of health services by some population groups (O'Brien, 1989) who might not be able to afford the money. The groups unable to pay would have to forgo something or borrow and might consequently go late to seek health care (Onango, 1990) at the health unit after several trials in other less expensive places (Subedi, 1989). This might in the long run increase the cost to the health service since the

individual might have to stay longer to get the problem resolved if admitted (Weissman et al., 1991) to hospital.

2.4.3 MANAGEMENT OF RESOURCES FROM COMMUNITY FINANCING.

According to UNICEF, revenues collected through community financing should be controlled and managed at the local level (Mandl et al., 1988; UNICEF, 1990) with active involvement of the whole community. The requirement that the revenue generated stays at the local level would conflict with the government's objective of recovering cost to expand the services to needy rural areas. If fees stay at the local level and are managed at this level, without possibilities of cross-subsidization, it is difficult to see how services can be expanded to rural areas as indicated by proponents of user fees. However this is only possible if central revenues from taxes can be switched to poor areas if rich areas raise more of their own money. Unfortunately, the rich areas might also think they are inequitably treated even though wealth is not evenly spread in the society (see table 30, World Bank, 1993). Subsidization as indicated above might be seen to be unequal distribution of taxes but when considered in relation to income, it is equitable.

The local control of revenues to finance needs, determined by the local community might not be a reality in most if not all developing countries. McPake and Hanson (1990) quoting from the 1990 EPI/PHC review in Benin said:

" The phrase '*Community Financing*' must at this point still be called a Euphemism. In reality, the approach is an attempt towards a decentralized and supervised management of the revenues generated from the user fees for curative care far from the stage where the community will be able (via the health committee) to decide on the mode of payment and on the utilization of those resources."

The involvement of the community in the management of the resources has advantages as well as disadvantages. As a disadvantage, the management of the revenue raised by the local community might be difficult because most community members lack

management skills (Garner, 1989). Another disadvantage may be the possibility of the funds being embezzled. This might result in division among the community members and ultimately demotivate the population from future participation in health care and even other community activities. As an example of possible embezzlement, money collected by doctors working in a project in Ghana never reached its destination, the project headquarters (Waddington and Enyimayew, 1989).

Attempts have been made to limit the possibility of embezzlement and to teach management skills to community members (Owona *et al.*, 1993). Health committees have been made responsible for the finances rather than single individuals especially those connected with the health sector (Isely and Martin, 1977, Owona *et al.*, 1993). This solves the problem of misappropriation but leaves unsolved that of the safety from thieves especially in rural areas where banks are conspicuously absent.

One important advantage of the community managing its resources is the fact that the community gets involved in decision-making and is motivated to participate in future endeavours not only in health but also in other sectors of development (Wibulpolprasert 1991, Priti, 1991).

2.5 COMMUNITY FINANCING AND EXEMPTION STRATEGIES.

Some people in the community will never be able to pay for health care. This reality must be faced squarely and provisions made to deal with it (Akin *et al.*, 1985). Various ways have been explored in many programmes to cater for this group of people - the poor. One of the ways is that of discriminatory pricing, for example, charging for some services (curative care) while keeping some services free (preventive services) (de

Ferranti, 1985). Exemptions may be one other solution to the affordability problem for the poor.

Exemptions are important to "the balance between cost recovery levels and affordability" according to McPake (1993). However, exemptions are not without problems. Among these are the loss of revenue and the possibility of misuse by those able to pay (McPake, 1993) undermining the viability of the scheme. The decision to exempt has in some cases been left to the local health staff at the time of offering treatment (Mills, 1991). This appears to be inappropriate since the staff have not the time to do detailed investigations of patients' incomes. Decisions if taken will be done on purely subjective criteria like appearance, speech, dress and friendship to name just a few.

Due to the subjectivity and administrative cost involve with strategies like means testing, this responsibility of exemption has been handed to the community. In Benin, exemptions were made by the Health committee and only those who were thought to be in need by the community were exempted: these included victims of natural disasters and abandoned women (Knippenberg *et al.* 1990). On the other hand, in Ghana (Waddington and Enyimayew, 1989) there were virtually no exemptions made at the community level because it was believed that the extended family system acts as an informal Social insurance scheme which will in most cases pay for poor members.

A nation-wide exemption scheme can also be instituted. One example of such a scheme is that of Thailand where services were provided free to the poor by the various health units. The government in turn had to compensate the health units for lost revenue. Unfortunately, the region with the highest number of poor following criteria laid down by the government received less of the free medical care budget (Mills, 1991). The compensation had been based on the number of poor people treated within the previous period. No consideration was given to the different cultures of the regions as well as to

factors of accessibility to health units in the different regions. This disparity between the compensation and the number of poor might also be attributed to the use of different criteria for exemption in different regions (Mills, 1991). This means that to institute user fees, especially at the national level, adaptable criteria to identify the groups to be exempted have to be used as well as an agreed formula for compensation of health units that treat these groups.

2.6 COMMUNITY FINANCE PRICING STRUCTURE

Concerning the designing of a community financing strategy, the understanding of the cost of health services is an important step in developing the pricing structure though the prices could also be set on the basis of affordability which is difficult to define (Fabricant, 1992).

Criteria for the types of services to price have generally been agreed upon. Services which have been indicated to be suitable for pricing have included outpatient services for ill patients, inpatient services, drug sales and water supply (de Ferranti, 1985). However two important things are thought to be of considerable importance when the price of a health service is set. These include the decision on what cost the price instituted per service is supposed to cover and the mean income and distribution of income of the households in the given environment.

There are also some services with benefits accruing not only to the individual user but also to the general public at large. Such services are said to be "public goods" (De Ferranti, 1985). These benefits which do not accrue to an individual alone constitute what is referred to as "externalities". With the existence of "externalities" in the health sector, such services need to be subsidized by the government. This is the situation with

immunization, for example. Recovering cost for drugs at community level while the mid-level and tertiary levels are free has been criticized by Bennett (1989). On the other hand Creese (1991) has questioned if it is realistic to transfer revenue collected in hospitals producing much of the income in the health service of the developing countries to the community level for quality improvement. If the population had to cover the cost of investment, operating, and maintaining the health service, such a price might be more than the population can afford. Population participation is effective in most cases when it is to cover service running cost (Reveillon, 1987) though in some cases the population has been seen to provide buildings using local labour and materials (World Health Organisation, 1988a).

To put any pricing structure in place one needs to take into consideration the views of the community, the unit cost of services, and cash availability in the community. If a pricing structure is not affordable to the whole community, full cost recovery may not be effectively achieved. In this case, continuing dependence on central government subsidies is a necessity. Even if there was full cost recovery, the health sector revenue will only increase if government subsidies are not reduced *pari passu*.

In most countries, differential fee levels based on purchasing power are instituted in the form of lower fees in rural than in urban areas (Vogel, 1991). This is accepted to avoid people by-passing primary level to seek care in expensive and costly facilities in urban areas (Abel-Smith, 1985). Having to pay fees based on purchasing power might in the end result in very poor communities being unable to recover any cost. In the Republic of Guinea, there are proposals to subsidize health centres that are unable to recover their recurrent cost because of the poor socio-economic level of their populations. A "Solidarity tax" is supposed to be paid by all the health centres to the central level. This tax, it is hoped, will be used to cross-subsidize the health centres running at a deficit (Hanson *et*

al. 1991). Cross-subsidization appears to be a solution to polarisation but it also does not appear to be practised by many. The potential resistance to this looks high in some developing countries for political and administrative reasons. In Zaire, for example, in 1985, two health Zones (Bokoro and Bwamanda) practised cross-subsidization but health committees of the health centres that had surpluses strongly protested against this action (Bitran, *et al.* 1986). In designing a community financing structure one therefore needs to strike a balance between affordability and cost recovery levels.

Within the pricing structure, it may be necessary to look at the way the community financing scheme is integrated into the national health system. In Guinea Bissau, it was stressed that those who had prepaid needed to be exempted from further payments when referred to higher levels of the health system (Chabot *et al.* 1991). If this is absent, there is no incentive to use the lower levels which are the points of entry.

2.7 COMMUNITY FINANCING AND AFFORDABILITY

The literature reviewed so far has stressed the effects of fees on demand and utilization, all related to the provider of health services and no reference has been made on the effects on the user of the health care providers. Not very much has been written about affordability (Fabricant 1992) because of the difficulties of defining an affordable expenditure. Fabricant (1992) quoted Abel-Smith (1989) as indicating that Kenyans will find whatever amount is required including transportation cost to utilize health services but this was done at the risk of hardship. In the same country, Wang'ombe (1984) indicated that the cost of a visit to a health unit was Ksh 20 which is equivalent to about 3% of monthly income and about 4 - 5% of monthly food expenses. Is this hardship? An answer can only be given within the context of the environment of the study. Corcil

(1983), for example, found in Haiti that payments for traditional medicine resulted in the inability of households to meet food expenditures. In Ghana too, Waddington and Enyimayew (1989) found out that payments were made for health care with many difficulties, having to forego, in some cases food and transport. In Thailand, 60% of land sales were attributed to high medical care bills (Baum and Strenski, 1989) people had to settle. However in Burma, Abel-Smith and Dua (1988) reported that households for some months, tolerated contributing 25% of monthly household income to a latrine construction scheme.

Affordability can be looked at from a need-based concept rather than from only a demand-based one. McPake, Hanson, and Mills (1991) have reviewed and made a distinction between absolute and relative affordability. The former is based on a comparison to total income or expenditure while the latter is based on a comparison with alternatives to government health services.

Relative affordability occurs when households now spend less on services than before. Unless full account is taken of seasons and forms of previous expenditure, it is difficult to show relative affordability. One can effectively address relative affordability only if one studies how much households spend on health care before and after institution of community financing for example.

There have been attempts made to consider affordability when putting a price on health services (Yacoob, 1990, McPake *et al.*, 1993). In the literature, studies have considered affordability by attempting to determine a "reasonable percentage" of annual income that can be put aside for health care (Huber, 1993). The problem with a reasonable percentage is the fact that what is "reasonable" in a given country might not be in another; what is reasonable now for a household might not be in a year's time. Hence reasonable is difficult to define. Akin *et al.* (1987), and de Ferranti (1985) have even estimated an



affordable expenditure to be between 2 - 5% of the annual income of families. Huber (1993) also indicates that a typical household should not spend more than 5% of their annual income on health care. Shepard et al (1987) have estimated that those who were insured in four health centres in Rwanda spent only 1 - 3% of their household incomes on health care.

Expenditures made by individuals for private health care or on goods which are described as a "luxury" such as alcohol, cigarettes, have often been taken to represent the individual's ability to pay. The World Bank for example cites existing payments based on income and on patterns of expenditures for private sector health care as evidence of affordability (Akin et al, 1987). An example where the expenditure-based definition of affordability has been used is the report by Myers et al (1987) on prepayment for 8 illness episodes in Thailand by one sixth the mean annual expenditure on drugs and medical care. That based on income include the proposal by de Ferranti (1985) that a fee for outpatient might be determined with respect to the daily agricultural wage.

The ability to pay depends very much on the availability and adequacy of expendable income. So far many studies which have dealt with "the ability to pay" have done so by measuring the price elasticity of demand (Fabricant, 1992). In most of these situations those concerned have indicated the wish to raise revenue while not deterring any person from seeking care. Data from utilization and demand studies have been used as evidence of community affordability. Waddington and Enyimayew (1989) studied the utilization of health services in Akim district and concluded that the charges were unaffordable especially by low income families on the basis of responses obtained during focus group discussions and the decline in utilization noticed after the introduction of charges. The true ability to pay is difficult to assess especially as many factors influence decisions to seek or not to seek health care from a particular provider.

Though the level of contribution or support depends on the quality of health care, the health sector needs (supply of facilities and manpower), environmental needs and on the willingness and ability to pay (Jayasuriya, 1990), it is not clear how this [the willingness and ability to pay] is affected by the economic crisis and diminishing household incomes due to structural adjustment programmes. What is certain is the fact that affordability partly depends on the pricing structure.

2.8 DETERMINANTS OF DEMAND

Analyzing economic welfare, the starting point is usually the decision making unit which in this case is the household. This unit attempts to maximize its welfare. Welfare being difficult to define, a proxy for it has been the notion of utility that is assumed to be from the consumption of services (Mwabu and Mwangi, 1986). Observing the household consumption, household income and prices of health care services and given the theoretical framework used to analyze maximization of welfare in the literature, one can then show how these welfare levels are affected by a change in prices or income by estimating a demand model for health care.

Discussing cost recovery in the health sector using four country case studies from west Africa, Vogel (1988) made it clear that

" Not enough is known about the demand for the different kinds of health care services by different income groups, nor is enough known about the demand for different providers of health care services by different income groups. Detailed in-country econometric studies would fill this gap in current knowledge".

Stinson (1984) further stressed the need for more studies when it concerns community financing by indicating that " Community financing would be more viable if planners started by studying demand"

Many authors (Gertler and Van der Gaag, 1990; Muthuri *et al.*, 1989; Dor, Gertler and Van der Gaag, 1987) studying the demand for health care in developing countries have adapted and/or developed models ranging from simple to complicated ones. These models have incorporated some attributes which are peculiar to the developing world. Among these attributes are family structure, education, the quality of the roads and drinking water and family assets. Since user fees are low in developing countries, indirect cost (transportation cost, waiting time) may be expected to play an important part in health care choice. A number of studies have used models of access and utilization of health care services to identify different characteristics of respondents and services. These characteristics have contributed to different utilization rates of health care services.

2.8.1 DEMAND MODELS FOR HEALTH CARE.

Studies have been undertaken in developed countries using various models which have been and can be adapted to be used in the developing countries. The adaptation is the more necessary as the conditions for the demand for health care in developing countries are different from those in the developed countries. Most models of household demand for health care have focused on discrete choice problems (Akin *et al.*, 1986a; Heller, 1982; Dor, Gertler and Van der Gaag, 1987; Gertler, Locay and Sanderson, 1987). In most of these models, the dependent variable has either been the choice of a health care provider or number of visits to providers or household health care expenditure. Grytten *et al.* (1993) indicated that using visits makes it difficult to distinguish between utilization and demand. Musgrove (1983) and Heller (1982) have analyzed the amount of care demanded as measured by medical expenditure or the number of consultations. Total expenditure for health care has been used in the health care financing literature as a proxy for the amount of health care used (Birdsall, 1987; Musgrove, 1983) and amount of dental

care used (Grytten *et al.*, 1993). In a fee paying system, this proxy appears to be appropriate because there is a direct relationship between the amount of expenditure and the quantity of health care utilized. He proposed the use of expenditure as the dependent variable. Expenditure in this case includes cash and the opportunity cost of time. The independent variables have been a mixture of economic, social and cultural characteristics of the health care consumer (like income, educational level, perception of illness, attitudes towards seeking health care etc) and health facility characteristics (like price, distance from consumer, travel time and transportation cost to facility etc). It is not always possible to measure directly the cultural characteristics of household members hence specific population characteristics such as marital status, household size and education have been used as substitutes.

All the models so far used have been classified into the following groups:

(i) The simple utility-maximizing model which was used in early studies to estimate the price and income elasticities of demand (Akin *et al.*, 1985). It was assumed in this model that utility was got directly from the consumption of health care services as it would be from a new shirt or a pair of trousers. Price, which was simply the out-of-pocket expenditure, had relatively little effect and time cost was not considered. The importance of time was realized only when Acton (1975) put time valued at the wage rate into the budget constraint of this simple model. He found that in the presence of insurance cover, the demand for medical care became relatively more sensitive to changes in time price. Income too affected demand but its effect differed as to whether the income was earned or unearned. In the case of unearned income, income positively affects the demand but in the case of earned income, it might negatively affect demand given that increase in earned income meant an increase in wages and consequently an increase in the opportunity cost of time. The above assumption is contested by Torgerson *et al.* (1994)

who argues that "people not in paid employment could very well face a higher opportunity cost, in terms of time, when attending for health care" especially as most people within the formal labour force do not actually lose wages when attending for health care.

According to Akin et al (1981), Phelps and Newhouse added insurance coverage, Leibowitz and Friedman considered parental investment in child care while Goldman and Grossman added physician quality in the different models used. Akin et al (1981) modified the binary logit model used by Heller (1982) to analyze decisions to visit hospitals in his Malaysian study. The modified model used by Akin et al (1981) to analyze choices made by a population from a set of medical service types within the primary health care services in the Philippines is termed a multinomial logit because of the presence of many alternative choices of health care providers. Time spent for health care consumption is considered as a consumption cost.

(ii) The household production model which assumes that the source of the utility is the valuable characteristic produced by the services. Goods are here bought not for the pleasure they give but as inputs in production of health. In Becker's (1972) simple model, the household is seen as a production unit with its time costs entering the model through a budget constraint. Holtman and Olsen (1976) were among those who used this model in health care and particularly in dental care. They indicated that consumers use dental visits, time brushing teeth, dental aids and diet to produce dental hygiene which enters into their utility function. They however failed to discuss the importance of health status.

(iii) The human capital model which considers health as a capital good like education (Weisbrod, 1962, Selma, 1972). Health in this case is seen as a form of human capital which differs from other forms in that consumers of health care buy health care services not because they demand health services but because they demand "good health".

Grossman (1972) is one of those who has ably combined the human capital theory with that of the household production model to model the demand for health care as being an investment and a consumption activity. People are said to inherit from parents an initial stock of health that depreciates over time with age. The stock can be increased by investment. The assumption here is that people are well informed about their state of health and how it depreciates. This is inappropriate because in a health care market there are consumption externalities (Normand, 1991). Patients lack technical knowledge when it comes to making health care decisions and because of this "ignorance", the decision-making powers of the patient are delegated to the treating physicians (Waagstaff, 1989; Maynard, 1979). In such situations, the physician acts as a supplier and a demander at the same time. The demand decisions made by the physician on the patient's behalf start the supply of the health care chain once the patient has made contact with the physician.

In considering the investment model, Grossman used age as a proxy for the depreciation rate and educational level as that for human capital. Health is seen as a durable capital stock that will produce an output of healthy time. Unfortunately, Grossman does not go further to explain the relationship between non-age related illnesses and investment in health. Heller (1982) used the investment model but does not use it to incorporate directly health need though indirectly, health need is incorporated by his defining necessary and discretionary care as two different goods. In the consumption model, health directly enters the preference utility function of an individual. This depends on the preference for present versus future health. Age reduces the stock of health. It is also assumed that more education will raise the home and market productivity, reducing shadow prices of all commodities and making persons wealthier. This model differs from that of investment by incorporating wealth effects.

There are many demand models that have been in use at one time or the other. Igun (1979) discussing the health seeking behaviour of patients looked at the availability of drugs and the time cost to seek care as indicators of quality of care. He assumed here that cost is a part of perceived quality. He criticised the model used by others such as that used by Suchman (1965) for being too simplistic, assuming that patients did not move from one provider to another during an illness episode, and did not provide means of looking at how the choices of the providers were made. Fabrega (1973) is criticised by Igun for being too mathematical, neglecting socio-cultural factors which are important in health-seeking. However, Fabrega provides the logic for looking at how patients decide among perceived alternatives sources of treatment; how they move from one alternative to the other.

2.9 EMPIRICAL STUDIES OF ELASTICITY OF DEMAND

Econometric demand studies appear to have been done only in three countries south of the Sahara: Côte d'Ivoire (Gertler et al., 1990; Dor, et al., 1987), Kenya (Muthuri et al., 1989; Mwabu et al., 1986) and recently Nigeria (Akin, Denton et al., 1990). Econometric studies are aimed at testing economic theories, supplying numerical estimates of coefficients of economic relationships which can be used in decision-making and forecast future values of economic relationships (Koutsoyiannis, 1988).

The decision to set price and exempt certain people from paying needs to be made objectively. This will require knowledge of the relationship that exists between the amounts and sources of health services with respect to certain household characteristics (Income, wealth), health care provider characteristics (distance, travel time and price) and

individual characteristics (age, sex, education). All these relationships have in health financing literature been described in terms of elasticities.

2.9.1 PRICE ELASTICITY OF DEMAND FOR HEALTH CARE.

Theoretically, price affects not only a person's decision to seek health care but also the choice of provider. From a purely economic point of view, one will expect that an increase in price for health services will result in a reduction in demand, all things being equal.

From the many demand studies reviewed, some have reported demand to be inelastic while others have reported it to be elastic with respect to price. Studies from the Philippines (Akin, Griffin, and Guilkey, 1986), Schwartz *et al* (1988), from Rwanda (Shepard *et al*, 1991) and Malaysia (Heller, 1982) indicate that prices have minimal, if any effects on demand for health services in developing countries. Griffin (1988) in his review of user fees for health care, notes that most of the empirical studies of medical care demand in developing countries have found that people are insensitive to prices at the price level studied. Other studies have indicated that demand was elastic (Gertler and Van der Gaag, 1990, Gertler, Locay and Sanderson, (1987), Sauerborn *et al*, 1994). De Ferranti (1985) also cites studies by the World Bank in six different countries which find slightly positive price elasticities for certain types of health care.

Most of the econometric studies of demand in developing countries indicate the aggregate price elasticity of demand for health care to be below minus one ⁽¹⁾ (Bitran, 1988). Heller (1982) found the outpatient fee elasticity to be significantly less than unity but it appeared to influenced the choice of provider. In Kenya, Muthuri *et al* (1989) in

¹ Lipsey (1989) indicates that "sometimes either by carelessness or by design, the minus sign is dropped and elasticity reported as positive. It is almost universal practice when comparing 2 elasticities to compare their absolute, not their algebraic values".

their study of Meru district found that demand was inelastic with respect to prices within government and mission hospitals. In Rwanda, Shepard *et al* (1991) found a price elasticity of less than unity (-0.25) when they studied the utilization rates of four government and mission health centres. They modelled that when the price for an episode of care in the government health centre is doubled, the probability of using that centre reduces from 53% to 50%. They, however, concluded that though prices negatively influenced utilization of the reference health units, "it [the decline] is not large enough to cause policy concern" (Shepard *et al*, 1987). This idea of not 'causing any policy concern' is attributed by the author to the fact that some of the patients who could not use the government facilities due to the price increase were believed to have shifted somewhere else. They concluded that "the proportion of episodes obtaining 'modern' care from all sources is not substantially affected by higher fees'. The assertion that price inelasticity of demand as opposed to no price effect indicates no policy concern is to be taken with caution. Health is often seen as a necessity with few substitutes. This may explain the price-inelasticity of demand for health care. If health is not seen as homogenous, and specific categories of health care are considered, the price-inelasticity may be lost. There may be a positive relationship between price and quality but because most of the studies do not control for quality, this relationship is lost. Inelasticity may also be due to the neglect of the impact of price variation by income groups (Sauerborn *et al*, 1994). Roberts (1989) quoted by Fabricant (1992) observed that there were few studies that had actually observed price changes. He suggested that the inelasticity may be reflecting the effects of provider-induced demand. For example, in many cases low prices introduced for the first time in health care systems result in inelasticities. Price-inelasticity of demand will exist especially if there is a slight improvement in the quality of care offered after the

introduction of prices. Inelastic demand might still create sizeable utilization reductions which may be of policy concern.

From Peru, Gertler, Locay and Sanderson, (1987) using an innovative model where there was no restriction of the price effect to be independent of income as had been the case in earlier studies, found that demand becomes more price elastic as income falls. The two lowest income quintiles in the study were found to be very responsive to price changes. For example, Gertler and Van der Gaag (1990) estimated the arc price elasticities for the lowest income groups in Peru and Côte D'Ivoire to be -0.61 and -0.53 respectively. The study from Peru also examined the price elasticities across different income groups but all the prices used were imputed based on travel distances.

Other studies done later attempted to incorporate income effects. In Burkina Faso (Sauerborn *et al.* 1994), in Peru and Côte D'Ivoire (Gertler and Van der Gaag, 1990), it has been shown that when prices are increased, those in the lower income groups substantially reduce their utilization of health care services while those in the upper income groups who use the services less to begin with, are not affected. While the price elasticities in Côte d'Ivoire varied between -0.38 for those adults in the highest income quartile and -1.83 for those in the lowest income quartile, those in Burkina Faso varied from -0.12 for the highest income quartile to -1.44 for the lowest income quartile. Even small reductions in utilization rates of certain groups may be of concern especially in situations where those who need the services most will be unable to use them while those who do not or need them least continue to use them.

Analyzing family expenditure on medical care in some Latin American countries, Musgrove (1983) found that the private spending on medical care showed, on the average, an elasticity with respect to income of slightly more than one (on the average 1.17). Using aggregate studies in Indonesia, Chernichovsky and Meesook (1986) found higher income

elasticities of demand for health care and concluded that low household income was a barrier to the use of health services. They indicated that providing care free of any charge is of more importance to the poor than the rich based on the assumption that the services were available and accessible. The effects of income on demand for health services varies with the type of service demanded. Taking obstetrical and antenatal care as examples, Heller (1982), Akin *et al* (1985) found that income had only a minimal effect on their demand though data was collected only from health care users which might have biased the samples towards higher income households. This finding appears surprising especially as these services have been seen as discretionary and were consequently thought to be dependent on income. On the other hand, Habib *et al* (1986) in Iraq found that consultation rates increased significantly with increased income. However in Rwanda, Shepard *et al* (1987) found a low price elasticity for the low income group at a price level that was almost equal to the full cost of drugs for outpatient treatment in government health centres.

The different findings about the price elasticities of demand are difficult to understand especially as nearly all of them used the utility/discrete choice orientation and multinomial logit estimation procedures. However, differences exist in the datasets used for analysis and their designs.

One can for the moment only look at the findings of the different studies without attempting to compare them because of the different definitions of income that different researchers use. Chernichovsky and Meesook, (1986) defined income as total expenditure whereas Akin *et al*, (1985) use a measure of permanent income or wealth. On the whole, the patient's income is related to the decision to seek health care though the degree of relationship is difficult to get from the various studies.

2.10 OTHER STUDIES

2.10.1 THEIR EFFECTS ON UTILIZATION.

There is at present much discussion as to whether the introduction of user fees reduces aggregate consumer welfare (Griffin, 1992). User charges have met with opposition on grounds of their effects on utilization of health services by different groups in the community (Waddington and Enyimayew, 1990; O'Brien, 1989; Ryan and Birch, 1991; McPake, 1993).

The evidence on whether or not charges decrease utilization is mixed and depends on how the revenue is got and utilized. It is said that the fees might reduce utilization of the health care facilities (Creese, 1991; Waddington and Enyimayew, 1989). In Kenya the introduction of fees reduced the attendance of both men and women at sexually transmitted disease clinics which eventually might have resulted in an increase of untreated sexually transmitted diseases in the population (Moses, Manji *et al.* 1992). It has also been said that if the fees are used to improve on quality of care, the utilization will increase though in the short term it will reduce (Waddington and Enyimayew, 1989; Gertler *et al.* 1987; Mwabu and Mwangi, 1986). In the Republic of Guinea and Zaire, on introduction of user fees and essential drugs, patient attendance increased substantially (Jarrett and Oforu-Amaah 1992). This demonstrates the effect of improving quality of care.

A study from Swaziland (Yoder, 1989) indicated a 32.4% decline in attendance at government health units where there was a fee equalization of 300 - 400% between the government and mission health units which had long been charging fees (fee increases were effectively made only at the government health facilities). When the government and mission utilization data was combined, it was realised that there had been an overall

reduction of 17.4% in attendance but the same study also reports a 10% increase in mission units. The increase in the mission health units of 10% can be explained by the fact that some people who originally used government health units substituted with mission facilities which were seen to provide better quality care at the same price. Another study from Kenya (Mwabu and Mwangi, 1986) indicated that prices are important and affect utilization. While 15% of the recurrent Ghanaian Ministry of Health budget was successfully collected (Waddington and Enyimayew, 1989), it was noticed that utilization of health services declined in both urban and rural areas, though the urban area later regained its pre-1985 (year fees introduced) levels after some years. Creese (1991) indicated that on the average, 5% of government recurrent health expenditure in developing countries was collected. It has been suggested that the lack of adequate planning and education of the public about the fees might have been responsible for the decline in utilization indicated by many studies (United Nations, 1990)

In Pakistan, it was found that if user fees were to be increased in government health facilities, the utilization made by the poor of these facilities will reduce and they (the poor) will substitute with private providers rather than undertake self-care (Alderman and Gertler, 1989). The data for this study came from an urban environment and the travel and time cost for substitution might not be as high as it would have been had it been in the rural area.

Methodological problems make it difficult to compare these studies. For example, the Swaziland one was purely service based and no demand model estimated while the others were household based. Furthermore, in the Philippines, the price used was that charged by providers while that from Malaysia was that which people expected they were to be charged. In Rwanda, the price used was the total expenditure (price x quantity) as it was in the case of Grossman (1972). Grossman for example did not consider price as

an independent variable but converted it into a component of the endogenous variable, total expenditure. Holtmann and Olsen (1976) and Heller (1982) also used expenditure as their price variable. On the whole introduction or increase in user fees in most Sub-Saharan African countries has in most cases resulted in a reduction in utilization. It would appear there are disincentives with simple user fees hence any success with any payments at the point of service will require that one gets rid of the disincentives. Community financing has been suggested as a way of overcoming some of these problems (Abel-Smith and Dua, 1988).

2.10.2 EFFECTS OF TIME AND DISTANCE ON DEMAND FOR HEALTH CARE

Inequality in the use of health care services between urban and rural areas might be due to differences in accessibility (Lasker, 1981). People living in the rural areas are most likely to spend more time and money travelling to the nearest health centre or hospital facing a higher total opportunity cost of time. Musgrove (1983) notes that when assessing the impact of increased fees on utilization, account must be taken of changes in cost due to access. Heller (1982) and Akin *et al* (1986) treated time costs as nuisance terms.

From the study carried out in rural Côte D'Ivoire by Dor *et al* (1987), indirect access costs such as travel time were important in rationing health care utilization. The time price elasticities ranged from -0.29 to -1.44 over the zero to two hours travel time range. Akin *et al* (1985) found that travel cost and distance had no influence on utilization of health services to a point than they had earlier thought (Akin *et al* 1981). On the other hand, Heller (1982) found total medical demand to be highly inelastic with respect to time cost. It has been suggested that waiting time often has a positive influence on utilization because patients may perceive queuing as a sign of quality (Griffin, 1988).

Studies have provided evidence that as distance increases, the level of utilization decreases (Saeed, 1984; Kadt and Segall, 1981; Abbas and Walker, 1986; Habib and Vaughan, 1986). When locality inaccessibility is combined with unfavourable economic factors, its effects on utilization are greater.

Price, income, time and distance are not the only things that appear to affect the use of health services. It has been reported from Kenya (Mwabu 1986) that inspite of the readily availability of several choices of health care providers, only 31% of the time did people consult the free government clinics. Quality especially that perceived by a patient is another factor that influences the use of health services (Akin *et al* 1985). This perceived quality is related to price, staff attitudes, availability of drugs and waiting times (Fabricant 1992). Quality becomes very important in situations where prices are not important, the user is rich and when all the providers are equally accessible and are chosen on the cash-price basis (Gilson, 1988).

It has been found that seasons also affect the demand for health care (Mwabu, 1988, Litvack, 1992, Fabricant, 1992). Seasons have an effect on food supply, the price of food, monthly income, the availability of cash, time constraints and on the morbidity pattern (Mwabu, 1988). In many rural areas of tropical countries, malaria predominates during the hot humid climate of the rainy season. At this time, roads to most health facilities are at their worst. The use of health care providers can vary over the year because of the above variations. When households have less food, less cash and more free time, government free health care might become attractive since they are free and have a low level of time costs. At the harvest season, the same households have more cash as well as time constraints, so they might prefer the private providers or rely on self-care.

2.11 CONCLUSIONS

From the literature review, several hypotheses can now be generated: (i) an increase in the income of a household should result in more health care being demanded - the rich will demand more health care than the poor. (ii) Cash price, travel and waiting time cost will negatively affect demand. Micro-economic theory indicates that the probability of a visit to a provider is negatively related to the cost associated with that provider but positively related to cost associated with the substitutes.

Other factors such as consultation time, distance travelled to health unit, socio-economic level, education and quality of care rendered have been observed in studies to influence the use of health care services.

CHAPTER 3

LITERATURE REVIEW II ON SURVEY METHODOLOGICAL ISSUES (HOUSEHOLD INTERVIEW SURVEY AND FOCUS GROUP DISCUSSIONS).

3.1 INTRODUCTION.

Within the past decades, there has been a growing need to merge different types of research methods. Warwick (1983) stresses this point by saying that:

"The past two decades have seen a growing recognition of the need for merging two or more research methodologies in the same study".

Stone and Campbell (1984) have indicated that qualitative methods supplement quantitative ones to solve the problem of cultural reinterpretation of questions by respondents. Furthermore, Jick (1979) and Rossman and Wilson (1985) have been quoted by Manderson and Aaby (1992) as indicating that "survey data require verifications by other methods through the process of triangulation".

However, the number of studies in which different methods have been combined more or less as equals has been small. Whyte *et al* (1983), for example, describes a research programme in Peru which involved several methodologies. They identified problems which included the lack of interest and competence in analysis of both types of data.

This chapter deals with the survey methods and the methodological variations noted in studies that have been carried out in developing countries. It starts with a discussion of the household interview survey process and then the EPI survey methodology. The chapter ends with a discussion of focus group discussions.

3.2 HOUSEHOLD INTERVIEW SURVEYS (HIS).

From the literature reviews (Kroeger, 1983, 1985, Ross and Vaughan, 1984, 1986; Kerr, 1985), the household interview survey methodology has been used in the study of the health care delivery system in many countries. It has particularly been of much use in primary health care (Hill and Dollimore, 1991, Oyoo *et al.*, 1991, Nordberg, 1988). Household surveys are recommended when precise indicators are needed. This methodology has recently been used to assess equity and efficiency aspects of cost recovery (Knippenberg *et al.*, 1990).

3.2.1 METHODOLOGICAL VARIATIONS IN HOUSEHOLD SURVEYS CARRIED OUT IN DEVELOPING COUNTRIES.

In spite of the fact that surveys have limitations when it comes to generating reliable data especially that which concerns behaviour and attitudes as indicated by population researchers (Stone and Campbell, 1984), it has been regarded as the corner stone used in health-related research. Methodological variations of studies carried out in developing countries centre around the definition of prices of services, morbidity, sample selection and techniques, interviewer selection, proxy against self-reporting, recall periods, questionnaire design, and the relationship between illness (morbidity) and the use of health care providers or services. These concepts will be reviewed below.

i) PRICE OF SERVICES

In the case of Primary Health Care where the concern is with the effects of prices of services, income, and wealth on utilization, equity and efficiency, *ex ante* expected out-of-pocket price would be the appropriate measure (Heller, 1982). Household surveys are unfortunately done after patients have been treated and their experience of use would

change their original perceptions about price. It then becomes difficult to get this *ex ante* expected price and use is made of the *ex post* out-of-pocket price (Bitran, 1988).

Some authors have indicated the use of prices actually charged the patients (Akin *et al.*, 1985). Some researchers have used the patient-reported total expenditure (number of visits multiplied by price) as the price. For example, Shepard *et al.* (1987) in Rwanda used total payments made by patients as their price variable, but this does not consider the fact that the number of visits is endogenous. In nearly all the reported interview surveys from the developing world, what has usually not been mentioned is alternative forms of payments. Much more interest has been put on out-of-pocket cash expenses than on in-kind payments which might carry a lot of meaning for the patient (Nichter, 1983).

ii) WHAT CONSTITUTES AN ILLNESS (MORBIDITY).

It has been noticed in developed countries that the results of household interview surveys, for example morbidity rates, are sensitive to minor changes in methodology (Ross and Vaughan, 1986).

Apart from the sensitivity to minor changes in methodology, there is a fundamental problem of the definition of morbidity. Should it be that of health professionals or that of the concerned patients?. A straight answer is difficult here. Those who support the definition by the professionals, according ^{to} Ross and Vaughan, say it is more objective and standardised for all the patients compared to that of the concerned patients. However, unless somebody thinks that (s)he has a problem, any morbidity however defined by the professionals might not lead to demand for health care, for example the case of schistosomiasis. This debate is far from being resolved but both definitions appear to be necessary for health planning though for this study, morbidity is that which is patient-defined.

iii) SAMPLE SELECTION AND TECHNIQUES.

Most studies refer to populations in defined areas. It might be difficult and unnecessary to interview everyone in the reference population, hence techniques have been developed to get representative samples. In developing countries where listing of households often does not exist and where skilled personnel are lacking, a method which is based on the cluster sampling technique has been recommended (Henderson and Sundaresan, 1982, World Health Organisation, 1988c). The World Health Organisation, (1989) has developed a manual based on this technique.

The problem of samples used in demand models in developing countries needs to be highlighted. The simple utility-maximizing model hypothesizes that those with low opportunity cost of time will choose less costly but more time intensive services. To test this hypothesis will need the treatment choices of a sample of sick persons. Acton (1975) on one occasion used a sample of sick patients in a public facility where services were free. This results in people who might not have liked using free services being left out completely. On another occasion Acton used a population based sample of sick and healthy people. This would be appropriate if sickness does not affect whether care is sought which definitely is not the case. Heller (1982) in Malaysia also does his analysis based on all the households studied instead of just the sub-sample of households with sick people. O'Donnell and Propper (1991) consider it inappropriate to relate the utilization and expenditure for health services to the total population in a socio-economic group. This is tantamount to assuming that the "not-ill" have the same average use as the "ill". Using either the total sample or the sub-sample of sick people will invariably result in different results. For example, there have been claims that health units in developing countries are underused while the staff are over-worked. One explanation of this situation might be the statistics that have been used. Users have either been compared to the number of service

people in an area or to the estimated number of sick people in the area or even to the incidence of diseases and morbidity in the area (Akin *et al.*, 1985). According to Akin *et al.* (1985), these indicators are measuring the supply of services rather than demand or use. Appropriate data, they argue should include the number of users who really had access to health services relative to the capacity for a constant-size staff.

iv) CHOICE OF INTERVIEWERS

A marked difference in responses has been seen in studies which used medical personnel and those which used lay personnel. Schulpen and Swinkels (1980) used health personnel as interviewers in Kenya. They found that the use of traditional healers had been underreported. This underreporting has been explained by differences in the ethnic and social backgrounds of the interviewers and interviewees. To sort out this problem, Kroeger (1983) recommends that interviewers should be ethnically and socially similar to the interviewees as much as possible and that qualitative surveys should be carried out to first of all identify the sensitive areas to be able to construct appropriate questionnaires. Carlson (1985) also recommended the employment of non-medical interviewers to get more reliable illness and behavioural information which reflects the patient's knowledge, perception and experiences.

v) SURVEY UNITS AND PROXY RESPONSES (RESPONDENTS)

Many health surveys have considered the household as the observation unit (Abasiokong, 1981); such include the general household survey in Britain; the Health interview survey in America and the health survey in France as indicated by Foets Marleen *et al.* (1985).

The definition of a household during studies varies with the culture in which the studies are carried out. However, the household must be defined to be culturally specific. In Côte d'Ivoire for example, the household was defined as " a group of people who ate

meals together and slept in the same dwelling for at least three of the past twelve months" (Gertler and Van der Gaag, 1988).

Proxy responding appears to be appropriate for children though it has been used for adults also. Proxies for adults have been found to underreport morbidity and use of health services compared to self-reporting (Napier *et al.*, 1972).

In many developing countries, "familism" is seen (Abasicong, 1981; Heller, 1981, Ankras, 1993, McGrath 1993). According to Abasicong (1981), familism is defined as "the subordination of individual goals and decisions to those of the family". Familism according to Heller *et al.* (1981) "is a positive form of social organization that serves as a social and emotional buffer against the marginality associated with lower-class existence". In a study carried out in Durango, Mexico by Heller and his colleagues, the "frequency of visit with a relative" was used as a measure of familism. Heller *et al.* (1981) goes on to elucidate familism by stressing that it is "a source of emotional and economic support for lower-class persons...and facilitates the use of health services". The most powerful member of the family takes important decisions pertaining to other members of the family (Kroeger, 1985). Though proxy for adults can give an idea of how the family or household behaves in the face of danger like the illness of a member (illness behaviour), it might pose a problem of underreporting. It is also very necessary to indicate here that illness "is a potential social and economic crisis for the entire group [household] of people" hence the group should be expected to participate in decision-making (Abasicong E.M. 1981). In Nigeria, 80% of all the 450 household heads interviewed indicated that the family as a whole decided on the hospitalization of the sick (Abasicong, 1981). ~~The~~ units, the household and household heads, are chosen since it is easier to get data on a large number of people by interviewing just a few household heads.

It is here assumed that when one member of the household is sick, other members also suffer in one way or other. In some societies reaction of the family or household depends very much on who is sick and what they are suffering from. With respect to illnesses that result in patients being unable to be involved in income-generating work, families that have limited resources are making choices regarding access to health care within the family (McGrath *et al.* 1993).

vi) RECALL PERIOD FOR HOUSEHOLD INTERVIEW SURVEYS (HIS).

Ross and Vaughan (1986) quote a study carried out by Freij and Wall in Ethiopia where comparison was made between daily and fortnightly interviews. Freij and Wall recommend two weeks be used for recall periods in household surveys. This is the same as recommended by Kroegeer (1983) as a compromise between loss of accuracy due to memory loss and getting enough information about current illnesses. In a study which was carried out in the North of Argentina (Kroegeer *et al.* 1988), no difference was noticed between reported morbidity with recall periods of 14 days and that of 2 periods of 7 days each. Whatever the recall period used, errors due to memory loss are bound to occur and it is therefore necessary to estimate the magnitude of the bias, something absent in most studies (Ross and Vaughan, 1986). Discussing the recall period, Ross and Vaughan noted the possibility of the transfer of events from the distant into the recent past is also a methodological problem, especially with serious events. An attempt to solve this problem especially in the developing countries proposed by Ross and Vaughan is the clear specification of the recall period using for example, local events by the interviewer.

Most studies reviewed have reported illness episodes within a given recall period but have unfortunately not made it clear if the illness episode started prior to the recall period or not. It is not surprising that this should be the situation since it is difficult to allocate reported symptoms into clear cut illness episodes. Some interviewees might report

more than one symptom and it becomes very difficult to attribute one or the other symptom to one or the other illness episode. Some have excluded those episodes that started before the recall period (Nehinda, 1977) while others have included them (Kroeger, 1982). Apart from the above, most articles do not mention those episodes that are in progress at the time of the study. These indications are necessary if one has to estimate the duration of the illness: the episodes in progress will inevitably result in lowering of the average duration.

As a general conclusion to this debate on the recall period, Ross and Vaughan (1986) say:

"The recall period should be long enough to include a reasonable number of illness episodes or actions within a feasible sample size and short enough to minimize the problem of recall errors.."

vii) CLASSIFICATION OF RESPONDENTS INTO SOCIO-ECONOMIC CLASSES.

In developing countries, there is a problem of classifying the households according to socio-economic status (Kroeger, 1985). This is because many people are not in formal employment and income is treated as confidential and hence difficult to assess especially in rural areas. Even if income were easy to get, Asa *et al* (1977) have shown in Mexico that "monetary income as such is not a good indicator of socio-economic conditions for rural populations".

In urban areas of some developing countries, classification of people into socio-economic class has been based on income, occupation, housing (Morgan *et al.* 1983; Castle, 1978; Pole and Ikeme, 1976) and informant ranking scales (Grandin, 1988). In Mali, ownership of one or more household goods such as a radio, a refrigerator, a moped etc discriminates the poor from those slightly better off (Hill and Dollimore, 1991). In Côte D'Ivoire, for example, it was shown that in rural areas, school attainment and the

amount of land owned/capita were best while in urban areas, school attainment and floor area/capita were positively related to wealth (Glewwe *et al.* 1988). Still in Africa, Miller (1989), used means of transportation, possession, type of housing and whether one belongs to a local money saving group or not to determine socio-economic status in a study in Benin. In Zambia and Cameroon, attempts have also been made to determine socio-economic status during household surveys. In Zambia, education, primary occupation, cash income, expenditure, water source, livestock, type of toilet, type and ownership of house have been used (Forsberg, 1990) while in Cameroon, "Save the Children" has used several criteria which included means of transportation, water source, participation in a local money saving group, farm tools, small business to determine socio-economic status (Save the Children, 1990). Furthermore, in the North west Province of Cameroon, within the context of a study of household expenditure on childbirth in a rural area in 1991, Eder (1991) used the wealth ranking method and found 29.7% of the families being classified as poor, 45.3% as medium and 25.0% as rich.

An eminent epidemiologist, Baker (1972) suggested two decades ago that income, education and occupation be used to develop a multidimensional socio-economic index. However these could not be used here because most of the people were peasant farmers and most of them had not gone past the primary school level. Zurayk *et al* (1987) proposed the use of education of all adults in a household to classify households according to socio-economic status. This has been proposed because education correlates with occupation and income, carries with it a higher level of awareness and skills, and most importantly, can easily produce a family or household level measure of social class compared to income or occupation. Education, too is age-linked since older persons in the developing countries have had less opportunities than the young people of today. The above is unlike in the developed countries where incomes, professional classes and

educational attainment have been used for a long time to develop socio-economic classes (Green, 1970). This was not used in this study, because most of the people were either with no schooling or had been only to the primary school.

Most of the classification of people into socio-economic groups has been based on the head of the household but there has been an expression of concern for the use of the head of household characteristics to represent the social class level of a whole household (Rahman *et al.* 1985). It has been suggested by others that characteristics of all members of the household should be used. Shorter quoted by Zurayk *et al.* (1987) delineated social class by evaluating the educational levels of all adult members and computed an average score for each household. Shorter used 15 years as the lower limit for an adult but it is necessary and important to consider just those adults that are more likely to contribute to decision-making in the household.

Many studies have attempted to use wealth or proxies of wealth to distinguish between different socio-economic groups. One author (Grandin, 1988) has proposed the use of informants for wealth ranking. This has been used mostly in the agricultural field in developing countries. In Thailand, housing quality has been used as a proxy for socio-economic status (Khumthong *et al.* 1986).

viii) QUESTIONNAIRE DESIGN.

Several questionnaires have been used in developing countries (Ministry of Health 1978, Grootaert, 1986; Lockerbie *et al.* 1986; Fitzpatrick, 1991, 1991a; Baker, 1990; Weiss *et al.* 1990; Roberts *et al.* 1987).

According to Kroeger (1985), reporting about illness is partially related to people's culture. Most people cannot translate their symptoms into ways that can easily be understood by health professionals (Kroeger, 1982). This has necessitated the proposal to use a list of "tracer conditions" (check-list) aimed at reducing the differences between

professionally and culturally defined conditions (Kroeger, 1983). With regard to questionnaire design, some studies in developing countries have used check-lists (Kroeger, 1982). Kroeger (1982), for example used a check-list of 30 "tracer conditions" in Ecuador and Gesler used a check-list in a study in Calabar, Nigeria (Gesler, 1979). This has the advantage that it makes the respondent think of the minor illness episodes he might have forgotten and overcomes the variation problem due to different definitions of illness. However with a check-list, the risk of having people responding positively to most of the listed symptoms is high whereas symptoms not listed are underreported. A symptom check-list should only be used after a qualitative study has been carried out in the given environment to determine the disease pattern and the disease concept (Kroeger, 1983a, Ross and Vaughan, 1986).

**viii) THE RELATIONSHIP BETWEEN ILLNESS AND THE USE
OF HEALTH SERVICES.**

Methodologically, there are difficulties to link the use of health services with the different symptoms or conditions reported by interviewees. This is simply because it is difficult to find the symptom within a group of symptoms that led to the use of health services.

Somebody might report two or more illness episodes at a given time with different health actions. Illness episode has been defined by some as referring to a period of illness not considering the number of symptoms reported. Others have coded the different symptoms of an illness episode. In this case health care use can be related to symptoms as well as to ill persons but then, some symptoms appear alone while others are associated.

The health care system in most developing countries is pluralistic. People when sick use other providers apart from those of the "modern" health care either concurrently

or serially (Subedi, 1989). Cross sectional studies retrospectively identify only partially the various steps in the health seeking process. In many areas, interviewees are very reluctant to admit the use of non-formal health services.

Despite their problems, the importance of household interview surveys needs to be emphasised. Kroeger (1983) for example, states that:

" In developing countries health interview surveys can be an important tool for a better allocation of scarce resources in order to achieve more equitable health care".

3.3 THE EXPANDED PROGRAMME ON IMMUNIZATION SURVEY METHODOLOGY.

This is commonly called the "EPI" methodology since it was developed to assess the vaccination coverage of communities. This is a methodology recommended for use in rural areas without a listing of households. The procedure requires that a central point be selected in each of the study villages. From this selected point, a random direction is chosen and the houses between this point and the edge of ^{the} village in the chosen direction is counted. One of the households along this line is randomly selected as the starting point. To get a reliable sample, it is advised to spread the starting points. This method, though developed for vaccination coverage surveys, has apparently been very successful and has been adopted for other purposes (Lemeshow and Robinson, 1985).

When this method is applied to vaccination coverage evaluation, 30 clusters are usually recommended though there is no statistical advantage that goes with this number of 30. Furthermore, the EPI methodology is based on the "probability proportionate to size (PPS)" cluster sampling which specifically requires a random selection of the study subjects. The PPS enables the proportions obtained to be "self-weighting" meaning that

one does not have to take note of the sizes of the different clusters when calculating the proportions (Bennet, Woods *et al.*, 1991).

According to the World Health Organisation (1989), in most rural areas it is often very difficult to get a list of the study subjects (households, patients, children etc) hence it is recommended that in case of carrying out a study in the rural area, one needs to have a very accurate population estimate of the area to be studied rather than a list of subjects. This is contrary to what has been recommended for the PPS cluster sampling (Lemeshow and Robinson, 1985). This is a point of concern with the EPI methodology since the randomness of the selection is not as required. The selection of households as recommended by the EPI methodology may result in over- or under-estimation of the true coverage. The EPI methodology requires that when the straight direction is chosen, one has to move to the edge of the community while numbering the house but it might happen that the community is too large for one to reach the edge (Lemeshow and Robinson, 1985). In this case, one might just select a direction and then randomly select the first household. This might result in statistical bias. This has led some to propose that a 30^o sector from the central location (using a compass to locate the sector boundaries) rather than just a straight line direction should be the area from within which the first household is randomly selected (Henderson *et al.*, 1973). The methodology also requires that the interviewers select the house whose door is nearest to the last one in which the interviewer had been. This is another opportunity for bias. Following the methodology, houses found empty are not revisited which again is a source of bias. However, the methodology has been modified, tested and found to be reliable and is being used internationally in the diarrhoeal disease control programme by World Health Organisation, (1989).

3.4 FOCUS GROUP DISCUSSIONS (FGD).

Researchers are nowadays combining qualitative and quantitative methodologies (Glik, *et al.*, 1987) to strengthen their research. There are many methods of qualitative data collection among which are observation, interview, questionnaire, video and audiotape recordings and narratives, and focus group discussions. One which has become increasingly popular involves the use of focus group discussions [FGD] (Kahn *et al.*, 1991; Basch, 1987; Folch-lyon, 1981; Stycos, 1981; Ramirez *et al.* 1988). It is this qualitative method (FGD) that this study uses in combination with the quantitative method of household interview survey (HIS). Decision-makers within the industrial sector tend to find qualitative data more useful than other research (Van de Vall *et al.*, 1976) because it indicates perceptions and reasons why consumers behave the way they do. It is not new since Bogardus is quoted by Stycos (1981) to have written about it in 1926 but until a few years ago, it was rarely covered in text.

In traditional information gathering methods, the researcher has a dominating and leading role. These methods have been criticised by some social scientists who started looking for other complementary methods. Focus group discussion is one of these alternatives. It used to be called the "exploratory-group interview". As Dawson *et al.* (1992) indicate " they are valuable in designing good questionnaires to test how strongly....beliefs, attitudes and opinions are held by the general community, and they can also be used to explain findings from a survey questionnaire. The quantitative surveys can describe what behaviours are occurring but cannot explain WHY they have occurred. Focus groups can provide this greater depth of understanding".

The main objective of focus group discussions has been to attempt to understand the health care consumers better to be able to provide them with suitable public health

programmes (Eng, Glik and Parker, 1990). In the health sector, this has been used mostly for disease prevention and health promotion efforts (Dawson et al 1992, Folch-Lyon and Trost, 1981, Heimann-Ratain et al, 1985, Basch, 1987, Alexander and McCullough, 1981). In Nigeria, Webb et al, (1991) used focus group discussions to investigate the cultural acceptability of distributing contraceptives in the market place.

3.4.1 DEFINITION OF FOCUS GROUP DISCUSSIONS

The term "Focus group" is used very often these days to apply to any group discussion experience. Unfortunately, this is not correct since focus groups have characteristics which are not common to all group experiences (Krueger, 1988). Focus Group discussion has therefore been defined by Krueger (1988) as:

" a carefully planned discussion designed to obtain perceptions on a defined area of interest in a permissive, non threatening environment. It is conducted with approximately seven to ten people by a skilled interviewer. The discussion is relaxed, comfortable, and often enjoyable for participants as they share their ideas and perceptions".

From the above definition, Focus Group discussion techniques involve bringing together a small group of individuals with certain common characteristics for an informal group discussion with the aim of getting an insight into the perceptions and misperceptions of the group. Common characteristics include equal status, same sex, similar perspective on the topic under discussion, occupation, educational level and age to name just a few. Axelrod goes further to recommend against mixing sexes in focus group discussions (Axelrod , 1975). It is advisable for the participants to be unfamiliar with each other because familiarity tends to inhibit disclosure.

3.4.2 NUMBER OF PARTICIPANTS

Krueger (1988) indicates that the group is usually made up from between 7 to 10 participants though this can usually vary from 4 to 12. However, Ramirez and Sheppard (1988) propose a group size of between 5 to 15 and give the ideal number to be between 8 and 12. In considering the ideal size of a discussion group, one has to balance the idea of having a small group which permits everyone to participate and also provide the diversity required with a large group that has the tendency to break up into smaller ones.

3.4.3 NUMBER OF QUESTIONS

Regularly, a focus group will have less than 10 questions and more often five to six, open-ended questions. Krueger (1988) advises the avoidance of dichotomous and "why" questions. It is stressed by many authors that consistent background information about the purpose of the study should be made available to all participants. This is to avoid or minimize assumptions about the various gains to be made from the discussions. However giving full information about the purpose of the investigations might sometimes increase the likelihood of participants expecting gains. In the final analysis, one has to look for an equilibrium between what to give and what to withhold (Krueger 1988).

3.4.4 NUMBER OF SESSIONS

Concerning the number of different group sessions, it is recommended to continue interviews until such a time that no new information is provided. According to Krueger, this is estimated to be by the third or fourth group. The discussion is usually led by a moderator who is versed in the topic under discussion and a good listener (Axelrod, 1975b).

The moderator leads the group discussion using a pre-prepared list of questions. For a better output, it is recommended that the participants should be made to feel at ease and secure to express their views freely even if these are not in line with what other participants think (Krueger, 1988).

3.4.5 HOW DOES FOCUS GROUP DISCUSSION DIFFER FROM OTHER RESEARCH METHODS

Focus Group discussion differs from sample surveys in that it is qualitative rather than quantitative. Compared to ethnographic research which is similar to it in its qualitative nature, Focus Group discussion does not require participant-observation and a long stay in a given community. Focus group discussion has been used extensively in market research to determine perceptions and misperceptions about some products (Krueger, 1988).

Tape recording during Focus Group discussion is usually recommended though hidden recorders and microphones are not advised. Tape recording remains the only way of getting the responses exactly as given by the participant. This is the more necessary as it is impossible to write down every response and follow up the discussions. Note taking is limited to putting down a few phrases to associate them with a speaker and also to note non-verbal interactions.

3.4.6 ADVANTAGES OF FOCUS GROUP DISCUSSIONS AS A QUALITATIVE METHOD.

In situations of financial constraints, focus group discussions appear to be one of the best methods of getting much required information concerning a subject especially

when the information is to come from rural people who in most cases are not very literate (Dawson, Manderson and Tallo 1992).

According to Dawson, Manderson and Tallo, focus group discussions is a method that is engrained in the cultures of most communities in the developing world. Hence from a research point of view, it is well accepted by most rural communities.

Unlike the household interview survey which is structured, focus group discussions are flexible enabling the researcher to get a wide range of peoples' attitudes and opinions difficult to get from the household survey procedure. In other words, quantitative research is concerned with hypothesis testing whereas qualitative research is concerned with meanings and processes; seeking to understand human behaviour from the subject's own frame of reference (Shmerling *et al* 1993).

3.4.7 LIMITATION OF FOCUS GROUP DISCUSSIONS.

There are limitations with this procedure especially if it is not handled by a well trained moderator. The main limitation of Focus Group discussion is the difficulty to analyze the data obtained (Eriksson, 1988) which requires a carefully trained moderator, something which is lacking in most developing countries. Even with a well trained moderator, there is the possibility of interviewer's bias. Furthermore, many groups vary and the moderator has less control over the groups in some cases.

Apart from the above, focus group discussions might run the risk of getting what the given community considers as acceptable rather than what actually takes place in it (Dawson, Manderson and Tallo, 1992). Furthermore, it is usually difficult to extrapolate the views from focus groups to those of the wider community especially as the focus group discussions indicate a range of views and opinions but not the distribution of these views (Schattner, Shmerling and Murphy, 1993). Notwithstanding the above limitations,

the discussions can be productive if carried out in an environment conducive to conversation.

3.5 SUMMARY

This chapter has discussed the study methodologies, the household interview survey (HIS) and the Focus Group Discussions (FGD). Concerning the HIS, it was seen that from the literature, there were many variations that have been employed in many studies. In any case, the literature reveals that for a HIS, the study sample should be as representative of the general population as possible.

The Focus group discussions, on the other hand, indicates perceptions of community members and reasons why they behave the way they do. The choice of study participants is important as well as the choice of the moderator.

On the whole, the reviewed literature about study methodologies stressed the importance of the quantitative (HIS) and qualitative (FGD) methodologies. It was indicated that a combination of the two was necessary for a better understanding of the use of health care services in the health district under study.

CHAPTER 4

RESEARCH OBJECTIVES AND METHODOLOGY.

4.1 INTRODUCTION

After a wide ranging review of the literature about the study methods, their limitations and advantages in chapter three, this chapter aims at describing in detail the research objectives, the conceptual framework, the survey instruments and how they were designed as well as the sampling techniques and survey procedures used.

4.2 THE RESEARCH OBJECTIVES.

Faced with constrained resources, most sub-saharan African countries with the help of international organisations have proposed the institution of community financing. This study attempts to contribute to the health financing debate and in particular that of the effects of community financing on utilization. The research objectives were:

- 1 - To determine the base-line health care utilization patterns in the health district.
- 2 - To determine the influence on the choice and levels of utilization of health care providers of individual factors such as household income, education of household members and household size.
- 3 - To determine the influence on the choice and level of utilization of health care provider of health service characteristics such as price of services, distance from households, travel and waiting time to seek care.
- 4 - To explore the opinions of community members about community financing.

- 5 - To predict the likely impact on utilization of introducing community financing of health care in the health district.
- 6 - To estimate the revenue that can be raised at different price levels.

4.3 THE DEVELOPMENT OF THE STUDY METHODOLOGY.

The study methodology was developed after the review of the literature. The development process involved that of the conceptual orientation (framework), that of the methods and instruments for assessing the impact of community financing .

4.3.1 THE CONCEPTUAL ORIENTATION.

Many variables influence the demand for health care services. An operational model will of necessity consist of a dependent variable and observable independent ones with unknown parameters which have to be estimated. A choice of a health provider is made after an evaluation of its price and those of its alternatives. This price has to be found by the household. This price, according to some people will adversely affect some households. People in rural areas react in several ways to expenditure for illness. Some borrow from groups, friends or relatives while some sell their assets. All these may or may not affect the household. However if the amounts are large, the households might find themselves in a vicious debt cycle.

To be able to quantify the effect of community financing on utilization of the public health centres, there is need to isolate the effects of community financing from other influences on utilization such as accessibility. A model that can do this is one that can use empirical data from a household survey, analyzing it considering the influence of

socio-economic level, prices, distance and time. The model developed is derived from the theory of health care demand where it is said that treatment is a function of household, individual and health care provider characteristics.

From literature review and particularly the studies undertaken by Kroeger (1983) and Rosko *et al.* (1983), there are many factors that are presumed to influence the expenditure in public health centres and the choice of health care providers. These factors can broadly be divided up into two groups:

i) **Household and individual variables**

Income, wealth, sex, age, education of all household members, size of household, and occupation of the household head. Income is specified at the household level and represents the ability to buy any goods or services but in most cases does not give an idea of consumption patterns acquired through the years. Wealth, on the other hand, represents the accumulation by the household over time of resources and is here used to measure the household's permanent income during unstable conditions (Wong *et al.* 1987). The socio-economic status of an individual also affects the expenditure and choice of health care provider.

Concerning the socio-economic status, the population of patients is divided into groups according to their economic status. This study is aimed at getting "economic" grouping of the population seeking care and to see how the proportion of these groups in the total patient load might change with different levels of community financing.

Computation of household socio-economic status.

Considering the literature review about socio-economic classes in chapter 3, in this study, a socio-economic status score was assigned to each respondent using a modification of a technique that had been used in a primary health care project in Benin (Projet de developpement, 1987), West Africa where the culture is similar to that in the study area.

Instead of having to examine each of the variables that relate to the social and economic situation of the households one at a time, it was thought that it was better to make a composite score for socio-economic status of each household which explains to a large extent the differences in health behaviour. The construction of indices and then scores to quantify the necessary variables was done followed by the construction of quartiles.

To finally make up the socio-economic status index, several characteristics were used, taking into consideration the multidimensional nature of socio-economic status. In this study the decision was taken to use 2 basic characteristics which were:

- 1) **Reported income of the household estimated for the last month.** The concept of income has been defined as command over resources over time or as the level of consumption that can be afforded while retaining capital intact. The income unit in this study is assumed to be the household since decisions are made jointly and the resources are to a great extent pooled together. After the estimation of the income of the respondents, income quartiles were then determined.
- 2) **Housing and its characteristics (Housing quality characteristics).**
 - a) Type of house occupied by the household at the time of the study (situation of the floor, walls, windows, and roof) .
 - b) House size: Number of rooms excluding toilets in the house.
 - c) House ownership: Whether house was owned by occupier or rented from someone else.

The housing quality characteristics were regressed with total household income and they were found to be correlated (see chapter 6, table 6.1). The reported household income and the housing characteristics were thought to give a better idea about the socio-economic level of the households than education or occupation. The index was determined by giving scores to the different aspects of each of the above named factors. For Factor

1, the household monthly income divided into quartiles, points ranging from 0 to 3 were assigned in ascending order of the quartiles (lowest had 0 and highest had 3). Each aspect of factor 2, housing characteristics, is given points ranging from 0 to 3 considering whether to acquire it requires a huge amount of money or not. The cumulative frequency of the index is calculated and the households were then categorized into four socio-economic quartiles (groups): the poorest 25% (the lowest), the lower middle 25%, the upper middle 25% and the wealthiest 25% (the highest).

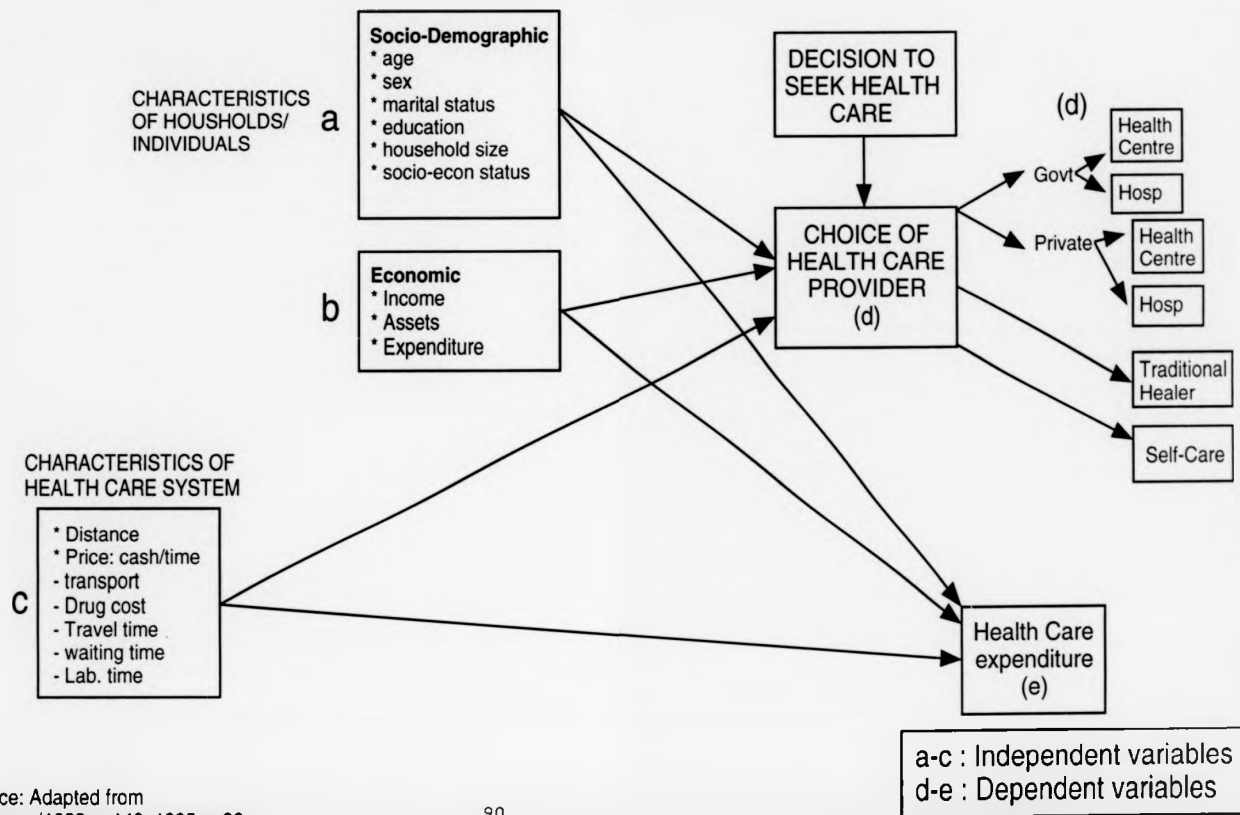
ii) **Health Service characteristics**

(a) **The price of service:** The patient reported payments made to the health provider for an episode of illness. The cash price for a visit, includes expenditure on transport and drugs and any other cash paid for treatment. Price is important because it is assumed that all other things being equal, a cheaper choice option is thought to be more acceptable so much so that a patient will choose a provider with the smallest total cost than one with a higher total cost.

(b) **Access cost:** This included the opportunity cost of travel time to the health care provider, of the time waiting to be treated, and of the consultation time. The treatment time was ascertained for the chosen option from the survey but for those with no utilization of some of the alternatives in the different zones, the opportunity cost of time was imputed for these individuals based on the average time taken by those who had chosen that option in each zone and health area. The same thinking holds for the distance travelled.

The schematic representation of the conceptual framework of the factors that influence the choice between alternate health care providers and the health centre expenditure is shown in the figure 4.1.

Figure 4.1 THE CONCEPTUAL FRAMEWORK OF FACTORS AFFECTING THE CHOICE OF HEALTH CARE PROVIDERS AND EXPENDITURE



4.4 THE RESEARCH PROCESS

Within the context of this study, both qualitative and quantitative methods were used and the reasons that led to the combination of these methodologies included the following:

- 1) - the introduction of community financing in a previously zero-priced system affects both the providers and consumers. Any study about community financing will have to reach as many people as possible since it is necessary to base arguments on data from a broad representative sample of providers and consumers. Among the many methodologies available is that of a household survey. However, it will be inappropriate to rely solely on the household interview survey (HIS) especially as there is cultural reinterpretation of questions and the notion of memory loss due to the recall period. Other methods of data collection especially the FGD procedure will therefore allow corroboration.
- 2) - Health financing changes (from zero-priced at point of service to community financing) need to take into consideration the current weaknesses in the health service, the expressed ability-to-pay, the concerns of the population, the payments made at the time of the change and any unauthorised collections of money from patients by health care professionals present in the health care system. It would also be necessary to find out if the change has any effects on non users of the health care delivery service. Health care financing is influenced by socio-economic, physical and psychological factors. A quantitative method alone, such as the household survey is inadequate especially as there is need to look "deeper" into the meaning and processes. A qualitative one alone too is inadequate, hence the need for using all the methods together.

- 3) - An indepth view into reasons why someone chose a particular health care provider rather than another one, the opinions of consumers, non consumers and providers about community financing cannot be got from only the household interview survey. There is need for indepth studies and focus group discussions.

The research process is presented in details in Figure 4.2 followed by a discussion of the study methods.

4.5. FOCUS GROUP DISCUSSIONS.

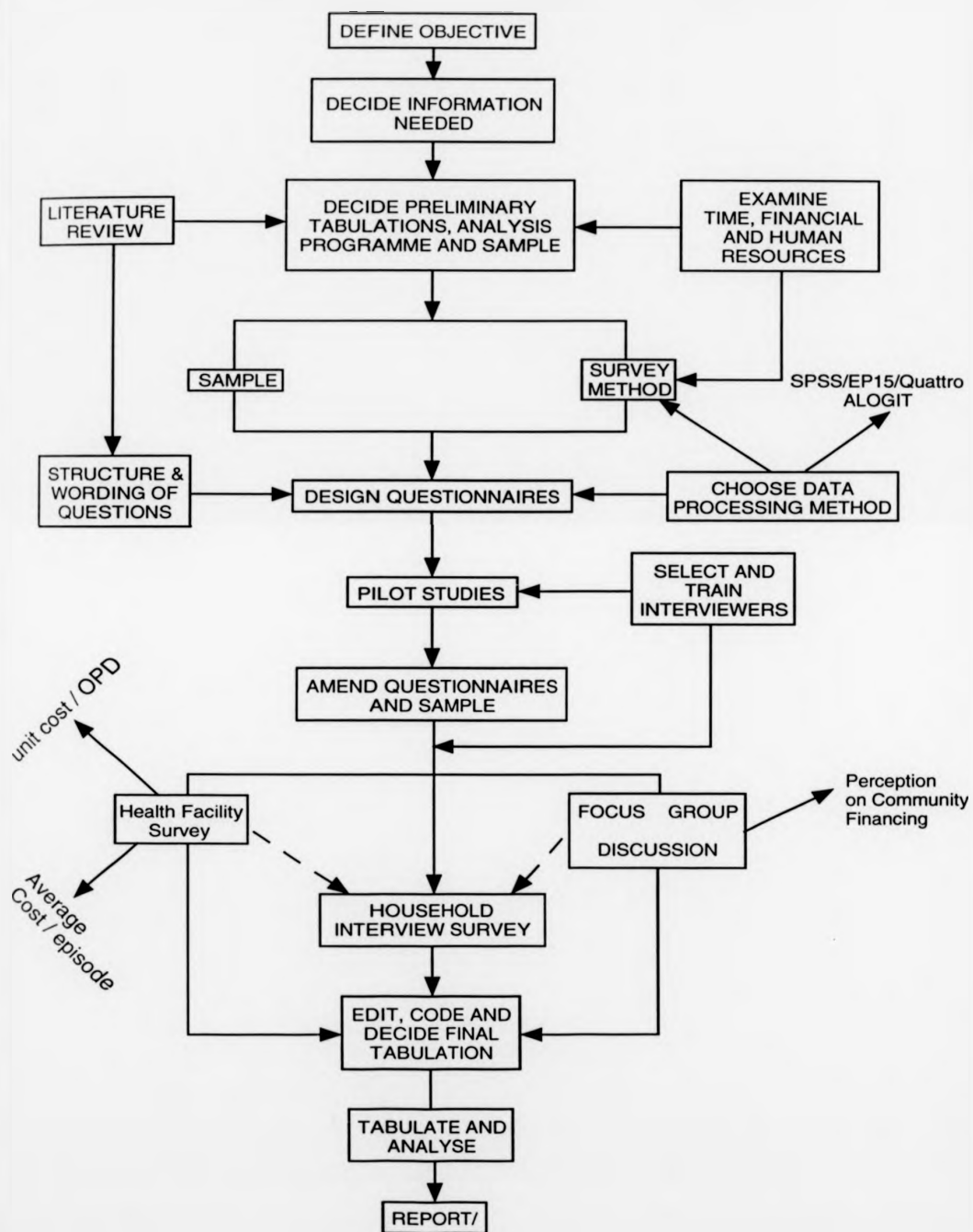
4.5.1 GENERAL AIMS:

- To determine peoples' perceptions, opinions about and attitudes to financing government health units.
- To determine people's experiences with various health care providers.
- To "fine-tune" the household questionnaire.
- To gather information which could later be used to validate impressions gained from the household survey.

4.5.2 THE FOCUS GROUPS FOR DISCUSSION.

With the help of the health committees, participants were chosen to serve as the sample for the FGD. Before the people to take part in the study were chosen, the purpose of it was explained to the health committees. It was made clear to the committee members that there was no immediate gain to be made from the study by the different villages. There was therefore no incentive to choose particular persons except those that fitted the requirements of the chief medical officer of the subdivision.

Figure 4..2 : The Research Process



Four focus group discussions with participants ranging from 8 to 10 each and representing all the shades of adult opinions that could be got from the communities members about the financing of health centre services were held in the health district.

- a) The first group was that of women. The choice of the women was made with the help of the various village health committees. The criteria indicated by the District Medical Officer included (i) age of between 25 - 40 years of age and (ii) with children aged between 1 to 5 years at the time of the study. This group of women was chosen because it was assumed they were prospective users of the health services.
- b) The second group was made of influential village leaders recruited through the different village councils and health committees. The chiefs of the villages were excluded and only people who can easily transmit information to others and are well respected in the communities were accepted. The exclusion of the chiefs was due to the fact that in this area, it is culturally unacceptable to oppose the village head in public and in his presence. People would have been inhibited to discuss frankly if the village chief had been one of the participants.
- c) The third group was that of the traditional healers who were chosen through the village health committees and local association of traditional healers. Those chosen would be residing and would have been practising in the different villages for at least five or more years. This is an important group because they have been providing and charging for services for a long time.
- d) The fourth group was recruited from among the health professionals. The participants were health professionals who would have been in the different communities for at least 2 to 5 years and hold professional nursing qualifications. This group was chosen because if any financing option is to be implemented, they

must be motivated and fully involved for it to succeed. They are the people to collect the fees.

4.5.3 DISCUSSION TOPICS

Guide-lines used by the moderator of the discussions were developed by the researcher in the London School of Hygiene and Tropical Medicine and refined after discussions with the provincial and district health authorities. The appropriateness of the refined questions for the FGD was again discussed with the district health authorities.

The moderators included a health professional, a sociologist (with a doctorate degree) and a student sociologist who were trained to carry out focus group discussions. They were at the time carrying out focus group discussions on family planning in one other district of the Province. They were paid a stipend to moderate the discussions after they had finished their earlier study.

With the focus groups, the discussions ranged over topics which included among others, discussions of recent experiences with the health care delivery system and the payments made. The discussion protocol and procedure are presented in appendix 4.1.

4.5.4 DATA COLLECTION AND ANALYSIS PROCEDURE

The procedure for the Focus group discussion can be divided into three main parts. These include (a) before the session (b) during the session and (c) after the session. Details of these main parts will be given in appendix 4.2 but suffice to say here that before the sessions a pilot study was undertaken with 10 people. During the sessions, each of the groups were asked the same core questions by a moderator who wrote down important points and observed the participants closely for any facial expressions. After the

sessions the audio-tapes were transcribed to detect themes that were common to all the groups.

4.6 HOUSEHOLD INTERVIEW SURVEY (HIS).

A household interview survey (HIS) of health care seeking behaviour was aimed at obtaining information from the households about the recent illness within the two weeks preceding the interview, the utilization of health care services and the health care expenditure patterns. It is assumed in this study that health care to children less than 15 years is free, hence only the adult population aged 15 years and above was considered in the final analysis.

4.6.1 UNIT OF INVESTIGATION FOR THE HOUSEHOLD INTERVIEW SURVEY.

The unit of investigation was the household and the household head was the respondent. In this area, it was agreed that a household was a group of people who habitually eat and sleep together on the same compound and most important have a household head recognized as such by the villagers, hence households are usually named after the household head - "the household of Ba Lebga" for example. This definition was finally arrived at after formal discussions during the focus group discussions and after informal discussions with many village leaders in the district.

4.6.2 QUESTIONNAIRE DESIGN.

The questionnaire was developed and designed in the London School of Hygiene and Tropical Medicine after consultation of various questionnaires that had been used in/or proposed for developed and developing countries.

The questionnaire was refined in the field in close collaboration with the local Ministry of Public Health authorities and after the pre-test. It was also refined after focus group discussions with various groups from the health district. From the results of this, some of the possible factors that were mentioned as being important for the demand and utilization of health care providers in the health district were noted. These factors, especially those that could be assessed using a household interview survey were included in the questionnaire for the household interview survey (HIS). The range of responses from the FGD were used to precode the household questionnaires.

The questionnaire consisted mostly of closed questions including:

- the social and demographic background of all members of the household (age, sex, educational level, marital status, employment status)
- the economic background of households: household income (earned and non-earned).
- the general living conditions (type of housing, number of rooms, number of occupants).
- the ownership of goods (television, radio, bicycle, motorcycle, cattle).
- the illness episode of adult household members had experienced during the two weeks preceding the survey (symptoms, diagnoses etc). [It was not required that the illness must have occurred within the last two weeks to the survey if the concerned was still presenting symptoms].

- the health seeking behaviour of the household members.
 - # Choice of option for health care.
 - # Treatment cost (expenditure on health)
 - # Reasons for use or non-use of any health care provider.
- the access to health services (time and distance from source of care, transport cost).
- the immunization services received within the last month (location, cost).
- the last delivery in the household to find out where antenatal clinics visits were done and where delivery took place. The total expenditure for the deliveries was also assessed.

In order to get an idea as to why people chose a health provider rather than another one, "the paired comparison interview technique" was employed (Young,1980; Kroeger, 1982). Those people who had reported an illness within the two weeks preceding the survey and had gone to the public health unit, for example, were asked why they had not gone to a private one or to a traditional healer. The reverse was also posed to those who had used a traditional healer or a private health unit.

4.6.3 VALIDATION OF THE QUESTIONNAIRE.

The content validity of the survey instrument was taken care of by closely relating the specific objectives of the study to the items on the questionnaire.

Within the questionnaire, some questions were used to cross-check the validity of the questionnaire. For example, question 34 asked if there was someone who has been sick in the household 2 weeks prior to the survey date. Questions 39 and 40 went further to ask when the illness started and ended while question 41 is used to cross-check the dates given and the answer to question 34.

4.6.4 SAMPLING DESIGN AND TECHNIQUES.

The multi-stage sampling technique was used to select the sampling units (households) (Lutz *et al.* 1992). In the first stage the health districts were the primary sample units. In a second stage, from the selected health district, health areas and the villages served by these areas were retained according to the following procedure.

- In the selected district, a list of all the health centres was made.
- A selection of all the health centres in the health district was made (2 mission and 8 government health centres).
- All villages in each of the selected health areas were listed according to individual populations updated from the 1987 national census. A cumulative population list of all the villages was also made. This study was set up to select one village (cluster) from each of the ten health areas in the district served by the health centres.

The total population of all the villages was divided by 10 to obtain the sampling interval. Using the serial numbers of 1000 Cfa francs (CFAF) note, a random number between 1 and the sampling interval was selected. The random number from the 1000 cfa francs (CFAF) note was then located in the list of the cumulative population of the villages to identify the first village in the district to be selected. The next village was then identified by adding the sampling interval to the random number and locating it in the list again. This was continued until all the required number of villages had been selected. One of the villages (Balikumbat) had a population which was much larger than the sampling interval, hence it was selected twice. In each of the selected villages (clusters), a constant number of houses was selected using the EPI methodology described later in Section 4.6.8. The sample is said to be self-weighting. This is the probability proportionate to size (PPS) method (Patricia *et al.* 1990; Kalton, 1983, Bennett Steve *et al.* 1991).

4.6.5 SAMPLE SIZE DETERMINATION FOR THE HOUSEHOLD

INTERVIEW SURVEY

The sample size for the household interview survey was done on the basis of the sample formula that enables the comparison of two proportions. It was based on the assessed rate of health unit use in developing countries, the study objectives and the available logistics. Even though our main concern was in the choice of providers by those who reported an illness within the two weeks preceding the survey, other issues were also of interest to us (for example, the health seeking behaviour by socio-economic status, why health centre or hospital was visited and not a traditional healer or self care).

The calculation of the sample size is indicated in Appendix 4.3. The study focused on adult outpatient visits, hence visits for immunization of children, and obstetric care were excluded from the final analysis. The total number of households required was 1340. Of this number, only 1147 households were interviewed, giving a response rate of 85.6%. 193 households (14.4%) were not interviewed because the survey was stopped when there was political violence (instability) running up to and after the Presidential elections of October, 1992 in Cameroon. A whole village with a mission health centre where 150 households were expected to have been interviewed was left out because the health centre refused to co-operate.

4.6.6 RECRUITMENT AND TRAINING OF INTERVIEWERS.

(i) RECRUITMENT.

The health committees of the villages served by the health centres in the district were asked to select boys and girls who could be trained as interviewers. The health committee was representing the medium of collaboration between the community and the health centre. It was the organ in the village that was better placed to work for the health

of the village and its members were supposed to know the boys and girls that had at least secondary school education in the village.

The Medical Officer indicated to the committees that those chosen should be honest, hard working, well organised, intelligent and physically fit. It was also indicated that the interviewers were going to be given stipends as well as transport to and from their villages.

The 8 Interviewers recruited were aged between 18 - 27 years and they were lay, non-medical people who had left secondary schools. Their average age was 22.6 years. No preference was given to any of the sexes by the author though in the final analysis the health committee members preferred males to females. This was most probably due to the fact that it might have been felt at the time that the female secondary school leavers would be required by their families either for child care or for other household responsibilities or to accompany their mothers to the farms as is the custom in this area. The opportunity cost of having to take the girls would have been very high. It would however also have been difficult to easily get a pool of female interviewers in this area. Part of the study (training of interviewers) required that the interviewers stay away from their villages for about five nights. The idea of female children sleeping away from their families is frowned at by most parents in the villages. However since the respondents were mostly male heads of households, the availability of only male interviewers was not seen as a problem at the time of the recruitment but problems arose later and are discussed in chapter 10, section 10.2.

All the non-medical interviewers selected were from the localities surveyed. This was done to reduce cultural barriers especially as literature indicates that people are more at ease with people with similar socio-economic characteristics (Kroeger, 1985), resulting in the collection of more reliable illness and behavioural information which better reflects

the interviewee's knowledge, perception and experiences (Carlson, 1985). They showed a willingness during the training to learn the completion of the questionnaire. Because of financial constraint it was not possible to make a selection from among many hence only the required number were trained and used.

(ii) **TRAINING.**

Training of the interviewers was done using a "Training manual for interviewers" by the researcher and World Health Organization manuals developed for health workers (Hepburn *et al.* 1986; Lutz, 1981, Lutz *et al.* 1992). The training consisted of theoretical and practical sessions in and out of the classroom. The theoretical part of the training started with an introduction of the survey and consisted of a discussion of the importance of the survey, its objectives, and the field procedures - selecting respondents, recording responses etc. The training continued with things such as the role of the interviewer, the interview as one method of research.

Practically, the interviewers read out all the questions aloud in standard and pidgin English ⁽¹²⁾. This was aimed at overcoming their shyness since for most of them, this was their first time of being involved in a survey of this nature - though some had taken part in a National census organized in 1987. The training took place in the health district for five days in a hall made available to the author by the authorities of the subdivisional hospital. It was conducted by the author and the district Primary Health Co-ordinator who is an experienced nurse and who was to be the study field supervisor. During the training role plays were performed in class with one interviewer acting as a respondent and another as an interviewer. The roles were then totated to give everyone a chance.

¹² Pidgin English is the lingua franca of most of the people in the area under study. It is the local form of the Standard English which is understood by nearly everybody. Not being a written language, it was difficult to translate the questionnaires into it.

At the end of the training, the contents of the questionnaire were re-examined in detail and the field control procedures were explained to all the interviewers. The interviewers were instructed to have with them at all times in the field their training manual for reference in case of any problems.

The interviewers were paid daily stipends as well as transportation cost to and from their villages at the end of the training.

4.6.7 PRETEST AND PILOT STUDY

A pre-test of the Household interview survey form (HISF) to be used was done during the training. After five days of intensive training, a pilot study in some quarters of villages with similar characteristics as those in the health district was carried out on 50 households.

The objectives of the pre-test and pilot studies included the following:

- to train the interviewers in field survey techniques and procedures.
- to test the questionnaire to be used in the actual survey.
- to evaluate the survey procedure (eg find out what the likely problems to be expected in the field may be, how much time each questionnaire took to complete).
- to find out the attitudes of the respondents to the questionnaire.

During the pretest and pilot study, the interviewers were specifically asked to note and report any difficulties encountered in the field. The questions were to be read out in Standard and/or Pidgin English (as practised in class) as appeared on the questionnaire without reading out the suggested answers. Standard English was used in most of the cases. Almost all the questions were pre-coded though they were all treated as open when it came to posing them to household heads. After the pilot study, there was a discussion

with the interviewers after an analysis of the completed piloted questionnaires by the author. The questionnaire was revised as indicated by the results of the pre-test and pilot study before the actual survey began.

The pre-test and pilot surveys indicated that each questionnaire required on average 45 minutes to complete though this varied depending on whether the household had anybody reporting an illness within the two weeks preceding the survey or not. The final version of the questionnaire appears in appendix 4.4.

4.6.8 SELECTION OF HOUSEHOLDS IN THE VILLAGES (CLUSTERS).

In principle, a listing of all the households in the different villages from which a random sample is drawn would have been the ideal thing to do. Maps of the various villages should have been drawn to facilitate the random surface sampling. This was not possible within the time allocated for the study because of the vastness of the study area and financial constraints.

The following procedures were undertaken to obtain a representative sample in each of the selected villages.

- The limits of the neighbourhoods of the villages were defined as accurately as it was possible with the help of the local leaders.
- The centre of the neighbourhoods were then indicated, as near as possible to their geographical centres.
- With the help of a ballpoint pen thrown up, a direction to follow was indicated.
- A numbering of all the households with white chalk along a straight line was done.
- The first household to visit was randomly selected.

The house whose front door was nearest the last chosen one (house-to-house) was chosen as the next household. This continued until the required number had been got.

The same sample size was used for each health area since the aim was not the evaluation of the attendance in individual health areas. In each of the ten health areas, the sample size was again divided proportionately to the population of the quarters in the villages served by the health centre. In all, 10 villages were selected and the sample size was 134 households for each of the ten health areas. A total sample size of 1340 households was arrived at.

4.6.9 INTERVIEW PROCEDURES.

The household interview survey was carried out within the months of August and October, 1992. Since there appears to be a seasonality of utilization, the study was timed to fall within the period of a downward slope of utilization (Appendix 4.5 where "S" represents the start and "F" the end of the study). Each of the interviewers was assigned to a health area. Each interviewer using the EPI methodology selected the first house and then moved from house-to-house. In each of the selected villages, the interviewers completed the heading of each of the household interview survey questionnaires (indicating their surnames and initials, the village name).

Using the EPI methodology (discussed above in section 4.6.8), the first and subsequent households to be visited in each quarter of the village were selected. In each of the selected households, the interviewer wrote on the door with chalk, his initials and the questionnaire number. Interviews were conducted by interviewers who moved from house to house in the mornings and evenings. The head of the household and the spouse were interviewed and in their absence, any adult living in the household. In case of an

empty selected house, the next nearest house was chosen. The questionnaires were completed by the interviewers.

Each household selected had only one questionnaire completed for it. The interviewer while in a selected house asked the head to indicate a quiet place in which to undertake the interview. After the location of a quiet place, he started by completing the first page of the questionnaire containing identification variables and then continued with the other sections. The interviewers read out the questions in standard and/or pidgin English loudly to the respondent as appeared on the questionnaire. In case there was nobody reporting an illness, or the illness had ended more than two weeks prior to the study, the whole questionnaire was completed except for the section on illness and the action taken (hence only the identification and income sections were completed).

The field interview was scheduled to be done within 45 days. Each questionnaire required from between 40 - 60 minutes for completion. On average, each interviewer was required to complete at least 6 or at most 8 questionnaires per day which required between 4 - 6 hours. This was done to avoid interviewer bias due to fatigue. Within a week, each of them completed between 30 and 40 questionnaires. The total number of households required in each health area was completed in five and a half weeks.

At the end of each interview, the interviewer went through all the questions to see that he had effectively asked all the questions. At the end of the day, this procedure was repeated for all the questionnaires completed within the day. If any clarifications were necessary, the household was re-visited the following morning but if not, the questionnaires were then handed to the supervisor who is also the District Primary Health care co-ordinator by the next weekend. He in turn scrutinized all the questionnaires to see that all had been correctly completed. In case of any errors, he located the house in the village bearing the number on the questionnaire and asked the interviewer to correct the

errors. When all this had been done, the questionnaires were then entered into the computer by the researcher. All the above was done in an effort to follow the quality of the work that was being carried out by the interviewers.

4.6.10 VALIDITY OF DATA COLLECTED.

The validity of the responses given by the household head on behalf of other members was taken to be important in this study. Some questionnaires were randomly selected for re-interview aimed at checking for reliability. 1% of all the household heads were going to be re-interviewed by the author. Unfortunately, just when this was to be done, the political situation in the country deteriorated and this had to be abandoned (see section below on problems encountered in the field). However, it has been noted that re-interviews have many problems among which is that of having to motivate the interviewees (Cochrane, 1951). It has even been found in Kenya by Schulpen and Swinkels (1980) that re-interviewing resulted in a drop in morbidity reporting compared to a control group. The validity of the data was still assessed using one of the variables - distance - which was taken as the "LEAD INDICATOR" of the validity of the responses. It was generally thought by people in urban areas that those in rural areas were unable to grasp the concept of distance. Distance estimates from the survey questionnaires were compared with distance estimates obtained from official maps drawn to scale by the government. The differences were not statistically significant.

4.7 HEALTH FACILITY SURVEY.

The Health facility survey (HFS) was aimed at the collection of data to enable the calculation of the unit cost of an outpatient service in view of setting a price to be used

in simulating the impact of community financing on utilization. The health centres recognised by local health authorities to be providing outpatient care of acceptable levels were chosen. Three health centres, one from each corner of the health district, were then selected for the study.

The questionnaire, hereafter referred to as the staff questionnaire, was completed by the chief of health centre. The questionnaire sought information about the cost of running the health centres. Particular emphasis was put on the staffing situation of the health unit - the number of staff, their professional qualifications and their monthly salaries, the cost of operating the health centre (recurrent and capital costs) and on the past utilization of the health centre services. The questionnaire is presented in Appendix 4.6.

4.8 INTERVIEWS AND DOCUMENT ANALYSIS.

Interviews and documents analysis (IDA) were used to collect information about the utilization of the health units, the operating cost and the feeling of officials of health-related government departments about the introduction of a service fee.

Interviews were conducted with responsible officials of health-related departments at the district level. The aim was to learn about their awareness of the current state of health care financing in the district, find out their interest in cost-sharing and have their suggestions as to how a cost-sharing programme could be managed (safe-keeping of revenue and use of revenue) [see appendix 4.1 for the interview schedule].

The analysis of documents took place at both the provincial, district and health centre levels. This was done with the aim of collecting information about the past

utilization of the health centres and the various expenditures made by the government in operating the health centres in the district.

Using the registers for the consultation for the past year in the three chosen health centres, the number of outpatients who were seen at each of the health centres was recorded. The cost per outpatient contact was then calculated by dividing the total non-salary recurrent cost by the number of patients seen (see appendix 4.8).

4.9 DATA MANAGEMENT AND STATISTICAL ANALYSIS

Completed questionnaires were entered into the computer using the software, EPI-INFO Version 5 by the author at the end of every week of fieldwork. The data was exported from EPI-INFO to SPSS/PC+ for descriptive statistics, basic statistics for frequencies of all the variables (percentages), correlations and test for significance of correlations and cross tabulations to see if, for example, choice differs by distance, by income etc.

The data was then translated from SPSS/PC+ to be used by ALOGIT, an econometric software to find out the factors that influence the choice of the various health care providers in the area. A FORTRAN program was first used to create a data file from SPSS/PC+ which is compatible with the ALOGIT software used for the calibration of the demand model. Each record was numbered and had dependent as well as independent variables for each option. The ALOGIT computer software package for discrete choice modelling developed by the Hague Consulting Group was used to calibrate the multinomial logit model (Daly, 1992). The method used was the Maximum Likelihood method. The model specifications were defined in a control file. The software was then

run while specifying the control, the data and the output files. The iteration process to find out the maximum likelihood was carried out to convergence. In the final analysis,

- The values of the parameters were estimated as well as evaluating their statistical significance.
- Direct and cross-elasticities for the different options were calculated.
- The demand model was then used to assess the probable effects of community financing on health care utilization, and its household welfare effects.

4.10 LIMITATIONS OF THE STUDY.

A study of this nature based on data that makes the assumption that there is a correspondence between what people report and their actual behaviours some two weeks before, would certainly have some limitations which indicate the caution with which the results should be interpreted. The limitations include the following:

- 1) - The study is limited to the determinants of demand for and utilization of outpatient services at the level of rural public health centres. This level (health centre) is important because it is that which treats the majority of the population who in principle gain access to hospitals only through referrals. It is the gateway into the national health care delivery system.
- 2) - It is assumed that the conditions when community financing will be introduced will be the same as at the time of the study. Any change in conditions such as for example, the political situation of the country, the income levels of the community members, the ready availability of private care, might result in difficulties when applying the results of the study in the field.

3) - This research studies the price effects on the demand for health care in relation to a wide range of service providers. The results are then to be applied to fees in public services. This will not necessarily produce the same results as a study of the actual introduction of the charges in the public facilities. Furthermore, elasticity estimates measure the demand effect of small changes in prices, but the impact of major changes is unclear.

4) - One problem with this type of study using econometric softwares involves the cost and time data of non-users of a provider. During the survey, only the money and time cost of people who reported a use of a given provider was available. The money and time cost of non-users of the given provider required for the computer programme, is assumed to be equal to that of users of that provider residing in the same zone or area of residence. For example, for those who in zone 1 who were sick and reported use of provider A but no use of provider B in zone 2, the money and time cost they should have borne if they used provider B is the average money and time cost of users of provider B living in the same area (zone 1) as the non-users.

5) - There is a tendency for those who live in the same area to behave almost in a similar way (known as intra-cluster correlation). The sampling errors in respect of some variables would be higher than that for random samples of the same area. Random sampling was not done because of the limited time for the study and even more important because of the enormous cost and logistic problems that would have been incurred. However, notwithstanding the intra-cluster correlation, the method used was one that randomly made the choice of households. Many practical problems were encountered in the field during the data collection (Appendix 4.9).

4.11 SUMMARY

This chapter has described in detail the instruments used for the survey and the various reasons for having used several methods which were thought to be complementary - qualitative and quantitative methods. The study is limited to the demand for health care from the health care providers in the health district. It has also discussed the selection and training of interviewers as well as the sample selection and field procedures.

CHAPTER 5

BACKGROUND TO THE RESEARCH SETTING: THE REPUBLIC OF CAMEROON AND THE NORTH WEST PROVINCE.

5.1 INTRODUCTION.

This chapter describes the demographic and physical environments of Cameroon, the country in which the field study was carried out. The health care delivery system and its financing as well as the economic situation of Cameroon within which any community financing is to be implemented are also discussed.

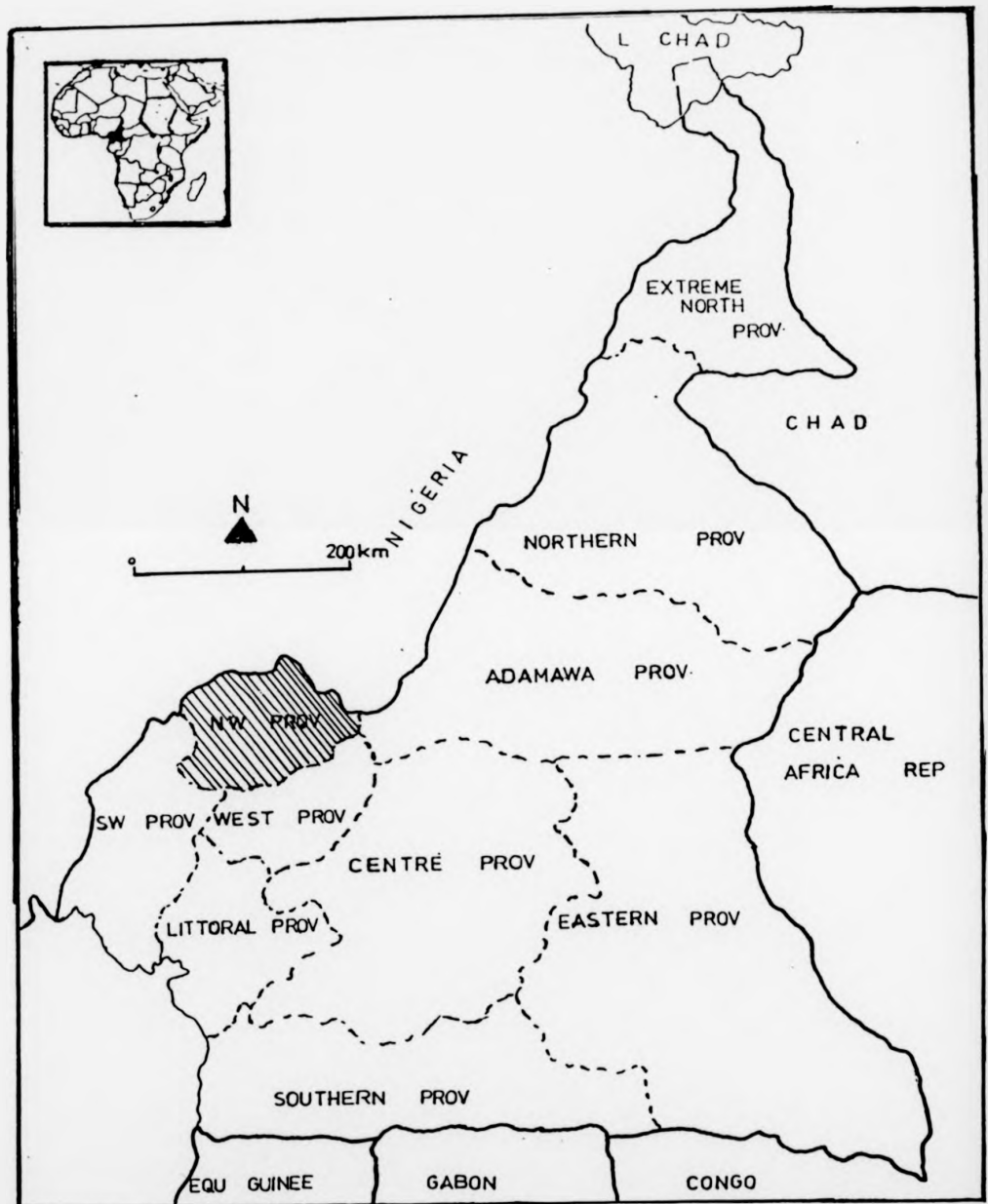
5.2 DEMOGRAPHIC AND PHYSICAL ENVIRONMENTS OF THE REPUBLIC OF CAMEROON.

5.2.1 PHYSICAL CHARACTERISTICS

Cameroon is a West African country bordering the North Atlantic ocean with 402 kilometres of coast line. It has a surface area of 475,440 km² but a total land area of 469,440 km². It is administratively divided into ten provinces, named after their geographic locations within the country (Figure 5.1).

Each Province is divided into divisions which are in turn subdivided into subdivisions. In some subdivisions there are districts which are the smallest politico-administrative structures. Following the most recent administrative division of the country, there are in total 58 divisions, 268 subdivisions, and 53 districts. The North west province to which this study is confined lies in the North Western part of Cameroon.

FIGURE 5.1: THE MAP OF THE REPUBLIC OF CAMEROON.



The climate is tropical along the coast and semi-arid in the north. The country has two seasons. The wet, rainy season from march until November and the dry, hot season from october to February. Topographically, the country is divided into the coastal plain in the Southwest, the dissected plateau in the Centre, the mountains in the West and the plains in the North.

5.2.2 DEMOGRAPHIC CHARACTERISTICS.

From the 1987 second National census extrapolated to 1993, Cameroon has a population of 12.5 million inhabitants with an average population density of 26 inhabitants/Km² (UNESCO, 1993) up from 22,6 inhabitants/Km² in 1987 (Ministère du Plan et de l'aménagement du territoire, 1990). 53% of the population live in rural areas.

The people who make up Cameroon are from varying backgrounds and cultures presenting with different value systems. There are many indigenous ethnic groups as well as others like the French, the Germans, the British and the Indians, Greeks and Lebanese who are very much involved with economic development.

Life expectancy at birth is 57 years from 53.4 in 1987, though still well below the average of 66 years for middle-income countries. The fertility rate is estimated at 5.8 and is well above the average for middle-income and low-income countries estimated to be 3.7 and 5.5 respectively (World Bank, 1992). This high fertility rate contributes greatly to the high annual population growth rate of a little over 3.0%. The proportion of the population under 15 years is 50% and the number of elderly people is increasing. At the moment, there is no policy statement supporting family planning or a national population policy (¹³) but there are some private and public clinics that make available to the

¹³. It was only in 1990 that there was consultation with the population of all the provinces with the aim of formulating a population policy. This followed the release of the 1987 population census. At the time of this study, there was no official population policy in the country. However, in 1993 with the help of the World Bank, USAID and FUNAP, a declaration of a national population policy was made. (see MINPAT.

population contraceptives and child spacing education. A summary of major health indicators is indicated in table 5.1 below.

TABLE 5.1: CAMEROON'S HEALTH INDICATORS

	1965 1980 (¹⁴)	1980 1985 (¹⁵)	1985 1990 (¹⁶)
Pop. increase %	2.7	2.9(a)	3.0
Crude birth rate	40	43.2	47.5
Crude death rate	20	17.8	14.9
Infant Mortality Rate	143	116.6	94.0
Life expectancy Male	44	46.4	51
Female	47	49.7	54
ALL	45.2	48.1	52.5

Source: (1985-1990):United nations.
1990 Demographic yearbook, 1984 & 1992.
(1965): World Bank. Development report, 1992.
(a) from Unesco, 1993, table 1, page 116.

Christianity is predominant in the South while Islam is in the North. Secret societies exist in both North and South of the country especially in rural areas where they are still circumcision rites for adolescents. Educational levels are very high with a literacy rate of 54% for the whole country. The literacy rate of males (66%) is slightly more than one and a half times that of females (43%).

Declaration de la politique Nationale de population. Commission nationale de la population, Direction de la planification, Unité de planification de la population. MINPAT/DP/UPP 93, Yaoundé, Mars, 1993).

¹⁴. World Bank (1992).

¹⁵. United Nations,(1992).

¹⁶. United Nations, (1992).

5.3 THE NATIONAL HEALTH CARE DELIVERY SYSTEM.

5.3.1 THE ORGANISATIONAL STRUCTURE.

The health care delivery system is based on the three-tier health care system of most developing countries consisting of, from the bottom, health posts, health centres (predominantly in rural areas) and referral subdivisonal, divisional and provincial hospitals and the teaching/research hospitals at the national level, situated in the national capital. The health centres and health posts give mostly ambulatory treatment and refer patients to district hospitals.

The health care delivery system is overtly centralized reflecting a legacy of the French colonial rule (¹⁷) where bureaucratic centralism was the order of the day. All policy decisions are made in Yaoundé, the site of the Ministry of Public Health, with very little delegated powers to the Provinces.

Whereas the urban areas have to cope with competition from the numerous clinics, and hospitals, the rural areas are still dealing with numerous problems of hygiene and sanitation. The health situation has been well summarised by Delancey (1989)

" ...Most Cameroonians have little access to modern medical care. The rural-based peasantry has almost no contact with physicians or hospitals. The urban-based working class and unemployed go to understaffed, overcrowded, poorly equipped hospitals. And the rich and the powerful fly to London, Boston or Paris for consultation and treatment".

¹⁷ Going back a little into history, after the defeat of the Germans during the second World War, France and Britain partitioned Cameroon between themselves. The French section was "La Republique du Cameroun" while the English section was "The Southern Cameroons". The health care policies of the two colonial masters differed greatly. While that of the French was centralized and authoritarian, that of the British was decentralized. These two systems were operational in the different "Cameroons" until the union of the two Cameroons following the 1972 referendum. The force of the majority prevailed and the French health care policies spread to the whole Cameroon.

Leading causes of morbidity and mortality especially among infants and children are those that can easily be prevented. The diseases, according to official health statistics reported by health units, resulting in the high infant and child morbidity and mortality rates include measles, pneumonia, malaria, diarrhoea, tetanus and malnutrition. This disease pattern is noticed with varying differences in the different provinces of the country (Ngatchou *et al.*, 1993).

The extent of the damage done by these diseases is indicated by the high infant mortality rate of between 90 - 95 per 1000 live births, and a child (0 - 5 years) mortality rate of 156 per 1000 (World Bank, 1991, UNICEF, 1989). These rates have decreased considerably from what they were some decades ago. In 1976, for example, the infant mortality rate was 157 per 1000 but in 1987 it had decreased considerably to 85 per 1000 (Ngatchou *et al.*, 1993). These health indices suggest there is still a pool of unmet needs in the population. These rates will reduce substantially if the childhood diseases are diagnosed and treated early enough. Of recent, Aids has become another major concern causing morbidity and mortality in all age groups.

Primary health care was officially made public by way of a Presidential decree in Cameroon in 1982 after the government had endorsed the Alma-Ata declaration and critically evaluated the DASP ⁽¹⁸⁾ zone approach. Primary Health Care (PHC) has been recognized in Cameroon (Ministry of Planning and Regional Development, 1986) as the only available tool for accelerating the process by which health services are extended to all. There appears to be unanimous agreement within the Cameroon

¹⁸.DASP, French acronyms for Demonstration zones for public health. Just after independence, realising there was inequality in the availability of health services to the population, the government embarked on a programme of constructing health centres in most areas. This did not seem to solve the health problems of the rural population especially as health centres could not be constructed in all the villages. This period of infrastructure development was then followed by that of the "first Aid Post" era. Unfortunately this bright idea, precursor of the present day primary health care, was too curative-oriented. Most of the health problems of the rural population could not still be solved since the preventive aspects were neglected.

government that the marginal rural and urban populations should be targeted in the first place. This is evidenced by the importance placed on this in the last sixth five-year plan from 1986 - 1991. In this connection the plan (Ministry of Planning and Regional Development, 1986)

indicated that:

" Primary health care is a priority area in public health on which Cameroon counts in order to achieve the objective <Health for all by the year 2000>. *The goal is to develop in both rural and suburban communities a system of basic health care accessible to everyone.* In this connection action will be undertaken to make the people responsible, develop prevention habits, educate all Cameroonians on hygiene and nutrition problems and on the need to have recourse to vaccinations"

Five years after the endorsement, the expected improvements in health status of the population from PHC were not forth coming, though the level of health and medical services in Cameroon has generally been improving in recent years. Although the economic difficulties have been partly responsible for this situation, there were some health care delivery system problems that appeared to be directly responsible. Firstly, the budgetary priorities of the Ministry of Health have remained unchanged for long, with most financial resources being tied to salaries and the greater proportion of the rest "eaten up" by hospitals (Ogbu *et al*, 1992). Secondly, there was top-down planning of activities coupled with the absence of management skills at the level of implementation as well as poor leadership, supervision and management support for health workers at the periphery. Thirdly, one of the most important problems was the fact that communities participated minimally (if at all) and too much dependence was placed on government and donor funding for primary health care.

As a consequence, the Ministry of Public Health needed to be restructured to be able to operate within the "district approach ⁽¹⁹⁾" concept as enunciated by WHO (World Health Organisation, 1986; Monckosso, 1989, 1992, 1993). This restructuring was effectively done in January, 1989 ⁽²⁰⁾ and since then the health policy in Cameroon has the district ⁽²¹⁾ as the operational unit for PHC. This corresponds to an administrative district with at least one hospital managed by a Medical Officer and several health centres and health posts through which Primary health care activities are provided (Owona, 1989).

The primary health care approach also had to be "redirected". This redirection of the PHC strategy is discussed in a draft ministerial document, "The re-orientation of Primary Health Care in Cameroon" (Owona, 1989, Ministère de la santé publique, 1992). This has since April, 1992 been officially published as the national primary health care policy (Ministère de la Santé Publique, 1992) but it is yet to be operational. The re-orientation of PHC was designed to make health care available and accessible to all the population in each of the Provinces. It aimed at making available peripheral organizations that could provide strong leadership and management support for providers of health care at the village levels from a reasonable distance. The district (subdivision) hospital was chosen as the focal point for such developments. It

¹⁹ In May, 1986, the World Health Assembly resolution 39.7 called on all member states to "lay particular emphasis on district health systems based on Primary Health Care, defining targets for the integrated delivery of essential elements of Primary Health Care until all districts and all elements are covered". This is one of the most formal recognition of the district approach by the World Health Organisation.

²⁰ The Ministry of Public Health was reorganized by Law Number 89/011 of 5th January, 1989. This reorganisation created an office for Primary Health Care and a service of community health and traditional medicine.

²¹ Cameroon is divided into provinces which are in turn divided into divisions each with a population of about 250,000 inhabitants. The divisions are in turn divided into sub-divisions which correspond to the health district. Each division has on the average 2 - 3 health districts. Within the ROPHC, the district is the important level for administration and planning. Each of the health district also has on the average 3 - 5 health centres serving a population varying between 5 - 15,000 inhabitants.

was therefore based on the delivery of preventive and curative services through a network of health centres under the supervision of the district hospital.

There were substantial changes in the management of Primary Health Care following the restructuring of the Ministry of Public Health and the re-orientation of primary health care. The new health care strategy can be said to have been standing on a tripod composed of (1) Cost recovery through fees for services and sale of drugs to cover some recurrent cost (excluding salaries), (2) Community co-management and co-financing of the health care delivery system and (3) integration of curative, preventive and promotional activities.

5.3.2 FINANCING OF THE NATIONAL HEALTH CARE DELIVERY SYSTEM

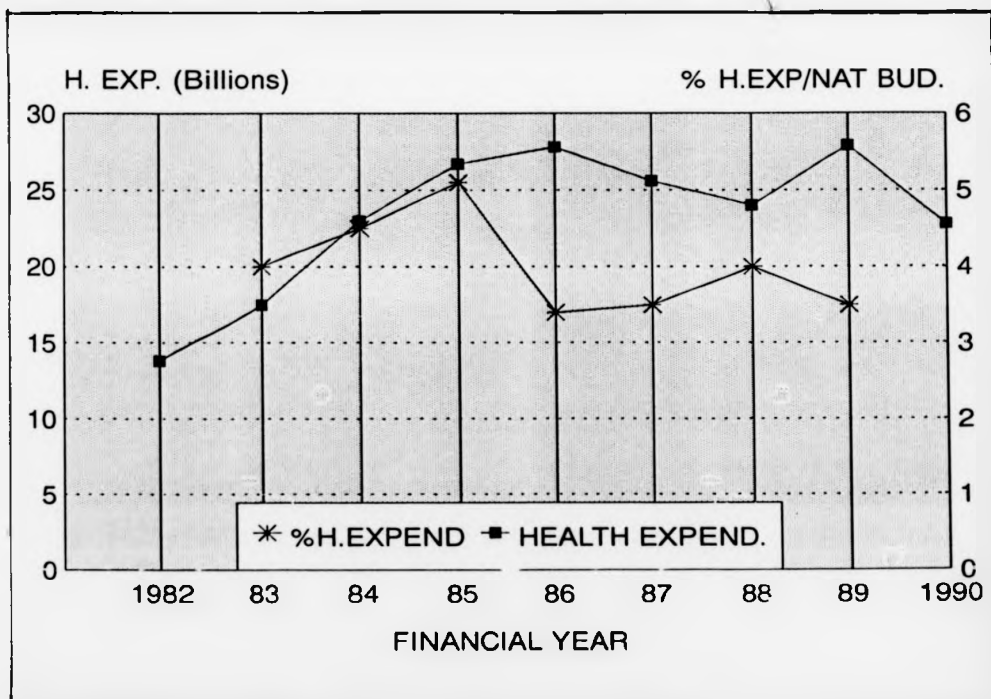
The first level of the health care system in Cameroon, i.e the health centre level, is generally characterised by the fact that the government has decided to guarantee the protection of health to all the citizens irrespective of their income or residence. This implies that all have equal access to the health services (free of charge at the point of delivery) and the patient also has freedom of choice. Though the first level is in theory free, patients have often been given costly prescriptions which are bought from pharmacies in towns. Furthermore, there have been cases where people, especially the poor, have paid money to personnel for services which are presumably free

The health budget as a percentage of the national budget declined from 5.1% in 1985 to 3.5% in 1989. In the 1989/90 financial year, the health budget represented 3.5% of the national budget which is equivalent to about US\$7.35 per inhabitant. Of

this amount, 84% or more go for the salaries and allowances of the personnel, since all the public health workers are paid by government.

The per capita health expenditure had been increasing in real terms, from US\$6 in 1980 to US\$12.60 in 1987, from 2646 (US\$9.98) in 1985 to 1912 (US\$7.2) in 1992⁽²²⁾. The 1980 - 1987 increase represented a drop of the health expenditure as a percentage of the national budget from 4.8% to 3.5% in 1987 (Owona *et al.*, 1990) despite the continuous growth in the Cfa francs (CFAF) amounts spent for health care as presented in Figure 5.2. The situation has been made worse by the recent devaluation of the cfa francs (CFAF).

FIGURE 5.2: TREND OF HEALTH SECTOR EXPENDITURE IN CAMEROON



²² The ministry of Public health estimates the drop to be from 3971 CFA francs in 1985 to 2060 CFA francs in 1992 (not very different from the 1912 cfa francs calculated here) (see Owona *et al.*, 1993).

Two distinct epochs are seen. The period of positive growth (1981 - 85) and that of severe financial crisis as real expenditure in health declined except for 1989 (1986 - 1990). This declining trend has continued till date. The level of the Ministry of Health expenditure for 1981 - 1985 averaged 18.2 billions cfa francs (CFAF). This average increased in real terms to 25.6 billions cfa francs (CFAF) within the second era, 1986 - 1990.

Before the advent of the so called "economic crisis" in 1986, 30% of the health budget was allocated to the rural health services but this was reduced in 1988 by 50% due to the economic crisis. This reduction in funding for health care results in weakness of the rural health care delivery system. Patients are therefore forced to seek care in urban health units - hospitals and health centres. Almost 90% of the cases that crowd the hospitals can be treated more cheaply in health centres in the rural areas ⁽²³⁾, a situation common to other francophone countries ⁽²⁴⁾.

During this same period, the Ministry of public health aided by international donors expanded the number of health facilities, its goal being to have at least a health centre for every 10 - 12,000 population, a hospital for every division and subdivision in the country and a referral hospital for every province. The government budget has since been unable to keep pace with the above expansionist tendencies. In a study of five sub-saharan countries including Cameroon, Ogbu O. *et al* (1992) noted that "the percentage of total government expenditures going to the health sub-sector has declined in Cameroon, Ethiopia and Senegal...". Furthermore, distribution of

²³ I worked in a hospital for sometime and realised that almost 9 out of 10 patients I saw every morning had complaints which could have been handled by the rural health centres if they took the pain to go there first.

²⁴ A study in Chad found that 71% of all consultations in the Central Hospital were for problems that could have been treated in lower-level facilities. (See World Bank Report, 1993, page 135).

expenditure is highly skewed with a higher proportion going to the urban facilities rather than to primary health care (World Health Organisation, 1987a).

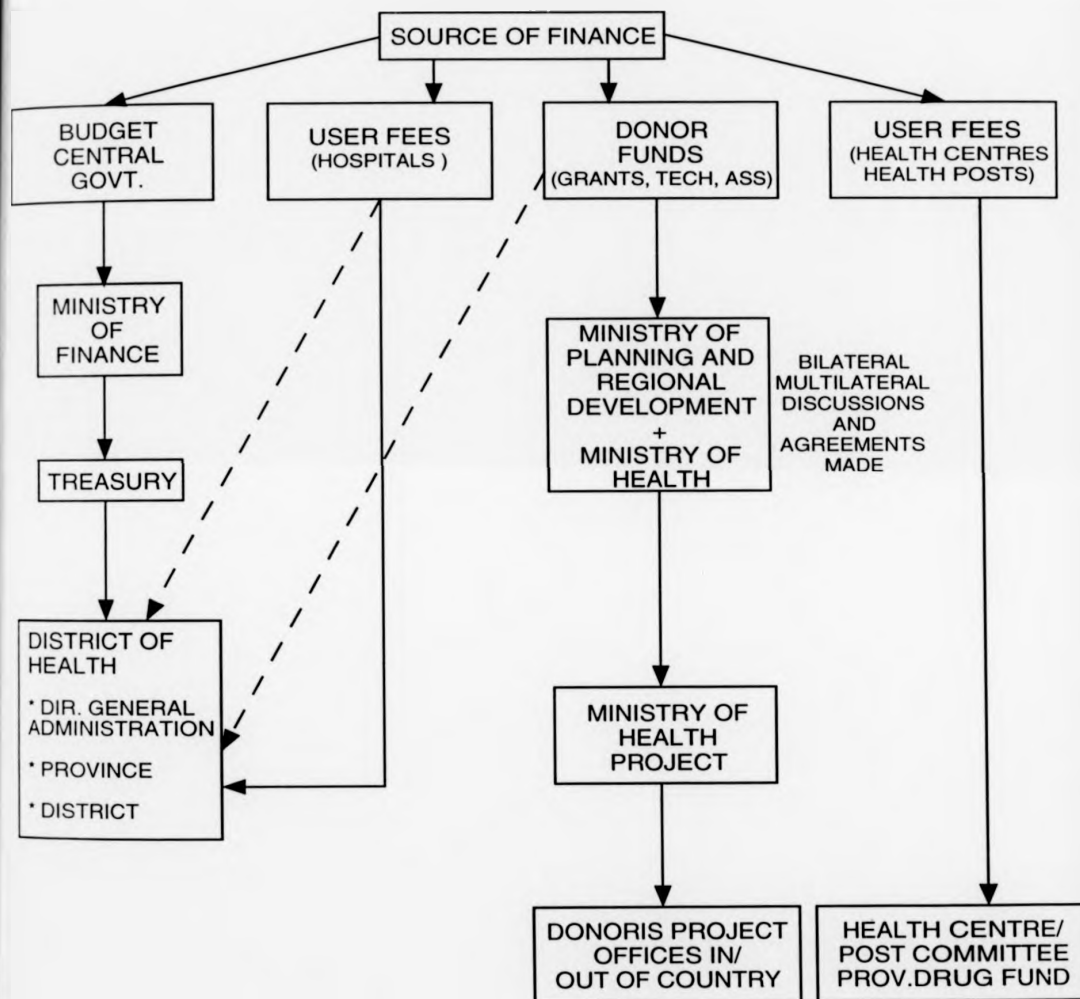
The financing trend in the public health care delivery system reflects its complex nature. Funds come into the sector from various sources. There are basically three main types of primary health care financing. (1) Funds from the central government and (2) International assistance in the forms of grants, loans and technical assistance and (3) Subsidies from the government to Private health units, most of which belong to religious organizations.

Though the private health units receive subventions from the government, they operate outside the government's direct control. In any case all private health units must be registered with the government. Figure 5.3 indicates a schematic view of the principal sources of Ministry of health's funds and their accountability especially as concerns the health centres and hospitals. At the level of the health post, there is financial autonomy: the communities buy their drugs, sell them and manage the revenue according to local needs.

i) CENTRAL GOVERNMENT FUNDING

The government is the principal source of funds for the ministry of health. Funds from government revenues (from taxes, income from public enterprises) are annually voted by the national assembly after a budgetary preparation process that gives the impression that it is bottom-up. The accounting department of the Ministry of health is responsible for the final preparation of all budget requests, for tracking and auditing all expenditures and reporting this information to the ministry of finance. The funds are then disbursed by the Ministry of Finance through the various government treasuries in the different provinces.

Figure 5.3: MINISTRY OF PUBLIC HEALTH FINANCIAL RESOURCES AND ACCOUNTABILITY BY SOURCE OF FINANCE.



← Main link and direction of flow of information and/or cash
 ← - - Weak link, only information (and not cash) sent.

Adapted from Fieldler J.L. (1993, p.740)

Unfortunately the budgets have no relationship to the requirements made by the different ministerial departments during the budgetary preparation process.

ii) DONOR FUNDING.

Considerable international assistance is given to the Ministry of health at the Provincial levels and particularly to the Province under study. After the bilateral/multilateral discussions and agreements with the Ministry of Planning and Regional Development, the funds are then channelled to the local projects/programs and administered by the donors through local project offices located within the Ministry of health. The accounting department of the Ministry of Health does not keep track of the donor funds and has very limited knowledge about this money.

iii) HOSPITAL FUND (USER FEES).

At the public hospital level, some attempts have been made to charge for Outpatient Consultation ⁽²⁶⁾. This has in principle been practised officially for a long time (Government of the Federal Republic of Cameroon, 1963). A 600 Cfa francs (CFAF) (US\$2.3) consultation fee, which is more than half the average daily wage of an unskilled labourer in the study district is charged. The system exempts certain groups - children, government workers, military personnel - from paying the consultation fees.

In Cameroon, all the money so collected at the hospital is paid into the government treasury as indicated by the budgetary law No. 62/6 of 9th June, 1962. This fee is consequently being looked upon more like a health tax instituted by the government hence the reluctance of health workers to collect it.

²⁶ See Law No. 63/DF/141 of 24th April, 1963 fixing the fees for the public sector and Law No. 62/DF/73 of 1st March, 1962 for the private sector. That for the Public sector was limited to only the French speaking part of Cameroon (East Cameroon as it was known then).

As international agencies might soon start to withdraw their seed money from primary health care programmes, the health ministry might not find it easy to meet recurrent costs to manage the present health services, and at the same time expand into rural areas. This was emphasized by Ogbu *et al.* (1992:616) who indicated after a study of five sub-saharan African countries including Cameroon that " with capital spending declining in share and slow growth in total health spending the ability to provide current levels of health services is called into doubt, particularly in Burkina Faso, *Cameroon* and Senegal". This problem of underfunding needs to be addressed urgently in the Cameroonian health care delivery system.

Unfortunately, lip service has always been paid to Primary health care and is not followed with meaningful allocations. Because of the increasing population and the economic crisis (reduction in available funds) the government is now unable to keep its "promise" of making PHC available in every corner of the country, even after restructuring the Ministry of Public Health and the Primary Health Care approach.

5.4 THE ECONOMIC SITUATION OF CAMEROON: ECONOMY IN CRISIS.

Cameroon is a country with many natural resources such as petroleum, bauxite and iron ore. Agriculture and forestry provide employment for a greater proportion of the population and contributes almost 25% to GDP.

Cameroon belongs to the group of "Middle-income" countries. The GNP boosted by foreign earnings from oil in the 1980s, was estimated to be between US\$850 and US\$1000/inhabitant depending on the source of the information (World Bank, 1991, 1993; UNICEF, 1989; UNESCO, 1993).

From 1982 until 1987, the size of the national budget of Cameroon steadily increased but has been on the decrease since 1988 as shown in Table 5.2. The part of

the budget allocated to development increased from 35.8% in 1982 to a high 42.5% in 1987 to decrease yearly to 30.6% in 1992.

Before 1985, Cameroon's economy which was export-oriented was among the successful economies in the developing world. The country exports oil, coffee, cocoa, cotton, rubber, bananas and timber. The real per capita income grew at an average rate of 6% a year. Between 1977/78 and 1983/84 financial years the average annual budget surplus was estimated at 2% but this went into a deficit by 1987/88 equal to 12% of GDP. Oil revenues are said to have represented 4% of GDP in 1980/81 to rise to 20% in 1984/85 but later fell to 6% of GDP by 1986/1987 (Litvack 1992) due to the decline in the world market prices. The number of barrels of oil produced fell from 60 million in 1987/88 financial year to 46 million in 1992/93. Oil still occupies a central place in the cameroon economy and it contributed about 54% of total revenue in 1990 (Derrick 1992).

TABLE 5.2: ANNUAL NATIONAL BUDGET: RECURRENT AND CAPITAL (+ DEBT REPAYMENTS) EXPENDITURES. (In billion Cfa francs (CFAF), 1982 - 1992).

YEAR	OPERATING COST (RECURRENT & ADMIN)	EQUIPMENT (INVEST & DEBT SERVICE)	TOTAL NATIONAL BUDGET
1982	199	111	310
1983	257 (29.1)	153 (37.8)	410 (32.0)
1984	326 (26.8)	194 (26.8)	520 (26.8)
1985	400 (22.7)	220 (13.4)	620 (19.2)
1986	430 (07.5)	310 (40.9)	740 (19.4)
1987	460 (07.0)	340 (09.7)	800 (08.1)
1988	400 (-13.0)	250 (26.5)	650 (-18.8)
1989	375 (-6.3)	225 (-0.1)	600 (-7.7)
1990	425 (-13.3)	175 (0.22)	600 (0.00)
1991	364 (-14.4)	186(06.3)	550 (-8.3)
1992	378.5 (4.0)	166.5(-10.5)	545 (-0.9)

SOURCE -[1982 - 1988]: Delancey, M. W. (1989: 144); - [1989 - 92]: BEAC (1992). 1982 is taken as the base year for all the calculations of percentages in brackets.

By the 1986/87 financial year, the economic crisis had started and has since continued. The economic crisis has been compounded by political instability since late 1992/93 financial year and has worsen due to the decline in oil production and people's refusal to pay their taxes. The total government revenues were about 15% of GDP while the expenditure was estimated to be about 24% of GDP resulting in a fiscal deficit of 9% of GDP. During the 1992/93 financial year, the real per capita GDP had fallen by 50% from the 1985/86 level. This has been attributed to the economic crisis and the rapid population growth. While this was happening, the gross consumption from 1986/87 to 1992/93 went from 67% to 89% of GDP and gross investment fell from 33% to 11% of GDP. The average annual growth rate of exports from 1981-86 was 13.7% but this fell to -11.8% from 1987-91, giving a net balance of -25.4% (World Bank, 1994). The total external debt is now almost 76% of GDP (Anonymous, 1993).

Many causes, both internal and external, have been blamed for the persisting economic crisis in the country (Ngandjeu, 1988). With regards to the internal causes, one factor was the dependence of the country on the export of its oil and agricultural products like cocoa, and coffee. Low prices for these commodities on the international market resulted in a decline in export earnings. Even though the country depended very much on its agricultural products, much of the growth in the country's economy in the seventies and eighties came from oil revenues which have been kept secret in an off-budget account. Another factor is the mismanagement of the limited resources of the country by government officials⁽⁶⁶⁾. Taking the oil revenues as an example, it is thought by many that the government might have helped in bringing about the economic crisis through mismanagement especially as it is kept secret⁽²⁷⁾. For example, in 1991, a former Prime

²⁷ Quite a lot of investment was made within the past two decades probably with the oil revenues. However, because it was confidentially treated nobody will even know what was actually used and what was misused. There has been reports in the private press in the country about top officials of the government mismanaging financial resources. For example, Editorial, Cameroon Post Number 109 (May 6 - 13th) week

Minister, said the total oil revenue in 1990/91 was CFA 250 billions (US\$918 million) of which the country took CFA 120 billions. The French treasury reporting about the franc zone estimated oil export revenue for the same period at some CFA 305 billions (Derrick 1992). What happened to the difference? A report in 1993 (Anonymous, 1993) indicated that one third of the proceeds from the "Société Nationale des Hydrocarbures" (SNH) oil sales was diverted to private use .

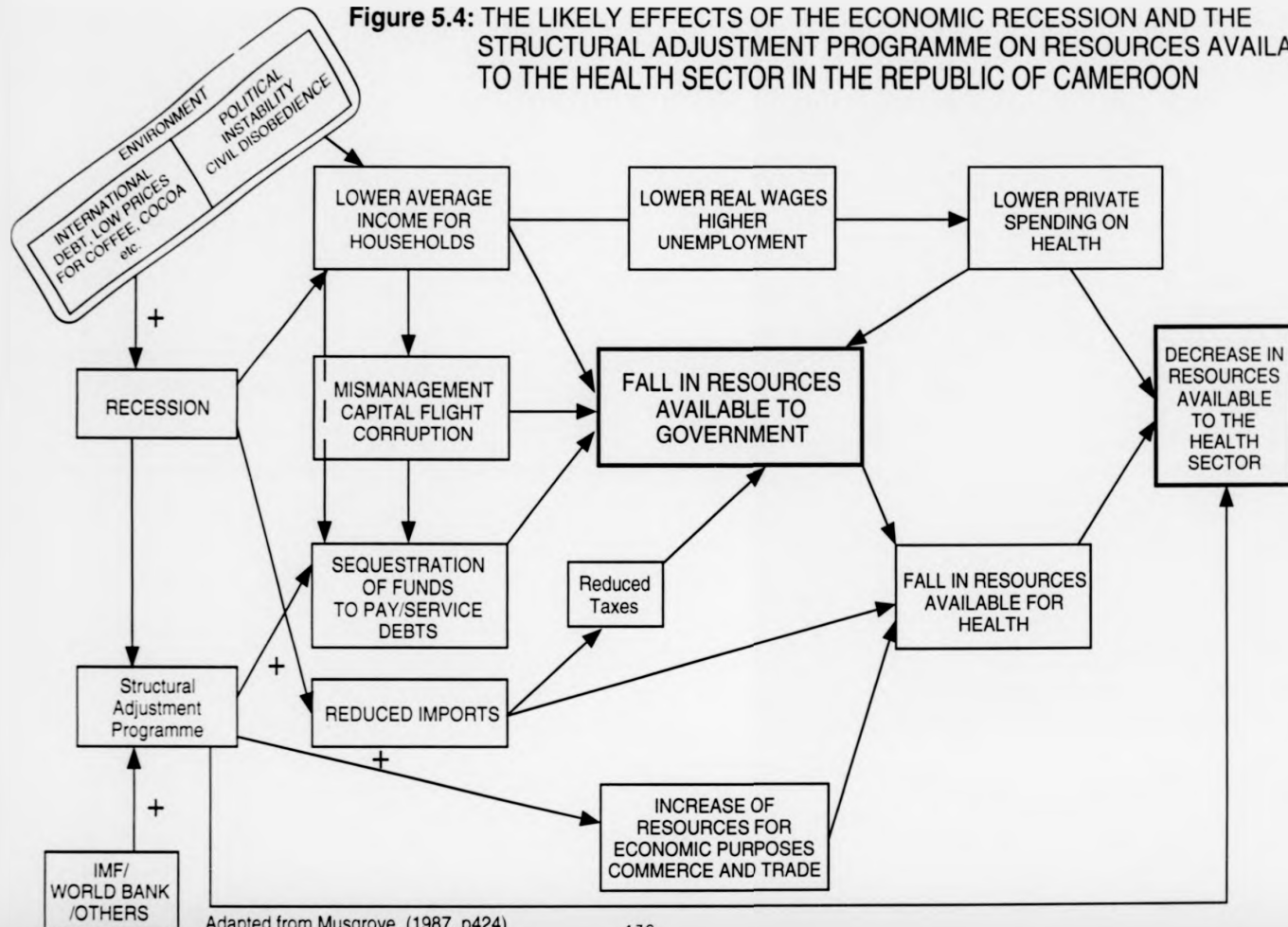
With regards to the external side, there are the adverse international terms of trade with rising prices for imported goods when the prices of the commodities exported by the country are on the decline. Furthermore the US dollar which is used for most of Cameroon's exports became stronger than the French franc and other linked currencies in which Cameroon's imports are denominated.

Growth came to an abrupt halt in 1986 caused by a steep decline in the prices of exports like coffee, cocoa and petroleum. The export earnings were reduced and inefficiencies in fiscal management came to light. With an economy in crisis as indicated above and the need to service massive international debt, the government had no other option than to adopt structural adjustment measures in 1987/88 financial year. These included a 19% reduction in total public expenditures; a 26% reduction in investments and a 13% reduction in all recurrent expenditures (Litvack, 1992). The government has actively encouraged privatisation of public co-operations (para-statals), diminished expenditures in all the sectors in an attempt to balance the public budgets (Blandford et al. 1990), the massive laying off of public service workers and a reduction in civil servants' salaries, restrained the demand for imports and promoted that of exports. A recent devaluation of the currency was used as a tool to achieve the aims above.

Since 1988, the government has had to reduce the number of para-statal from 153 to about 100 though there is some resistance to sell off profitable ones. This is probably because the Head of state can appropriate the profits of any para-statal for a discretionary account according to article 19 of the budgetary law (Anonymous, 1993).

On the whole, the SAP introduced during the 1987/88 financial year has had negative effects on the health and social welfare of households. It has resulted in impoverishment of the poor through income loss and subsidy retractions. Even those who earned wages and salaries are among those who have had the bitter effects of the structural adjustment programme (SAP) since these measures have had an undesirable effect on their purchasing power. The Structural Adjustment Programme (SAP) has also resulted in cuts in national spending that reduce the quantity and quality of public sector health investment and provision as indicated in the figure 5.4. Recently the government had to set up a social welfare programme called the 'Social Dimension of the Adjustment project' to cater for the poor and the vulnerable groups who might have suffered more from the effects of SAP. The various projects include the community initiative projects, the essential drugs and Nutrition programmes. The above discussions about the SAP gives the impression that it has only negative effects. This is not the case. SAP has resulted in the abolition of price controls, reduction of many export and import duties, liberalisation of the investment and labour codes and most important the reduction in the functions and size of the coffee export marketing board. Furthermore, SAP was as a result of economic crisis. The economic situation of the country would have been worse if there had been no SAP.

Figure 5.4: THE LIKELY EFFECTS OF THE ECONOMIC RECESSION AND THE STRUCTURAL ADJUSTMENT PROGRAMME ON RESOURCES AVAILABLE TO THE HEALTH SECTOR IN THE REPUBLIC OF CAMEROON



Adapted from Musgrove, (1987, p424)

5.5 THE RESEARCH SITE.

5.5.1 THE NORTH WEST PROVINCE

The site of the study is in the North west provinces of Cameroon (Figure 5.5) which has a donor-agency supported Primary Health care programme. It is about 400 kilometres from Yaoundé, the national capital city and is mountainous and, depending on altitude, feature tropical forest alternating with grassland. Communication by road is fairly good. There are two seasons - the dry and rainy seasons. The rainy season which is longer than the dry season starts in mid-march and ends in mid-november.

Shaped almost like a circle, the province is made up of seven divisions and thirty-one subdivisions (²⁶) of varying sizes and population densities. Ngoh-Ketunja, one of the divisions was the site of the study.

The province has an estimated population from the 1987 census figures to be 1,237,348 (estimated in 1991 to be 1,349,471) inhabitants spread out on a surface area of 17,400 km². The population density is today estimated at 71 persons per square kilometre (national average 26/km²). Even though the province covers about 4% of the total land area of the country, it has almost 11% of the country's population. The annual growth rate is estimated to be 3.2%. Of the total population, 78% live in the rural areas with limited access to the most basic primary health care activities. Though it is among the most populated provinces of the country, some parts of it are characterised by a sparse population settlement especially in rural areas which makes the access to health services by some of the communities very difficult.

²⁶. Within the Cameroonian setup, the subdivision with a population of between 100,000 and 150,000 inhabitants, is equivalent to a health district as described by the World Health Organisation (WHO).

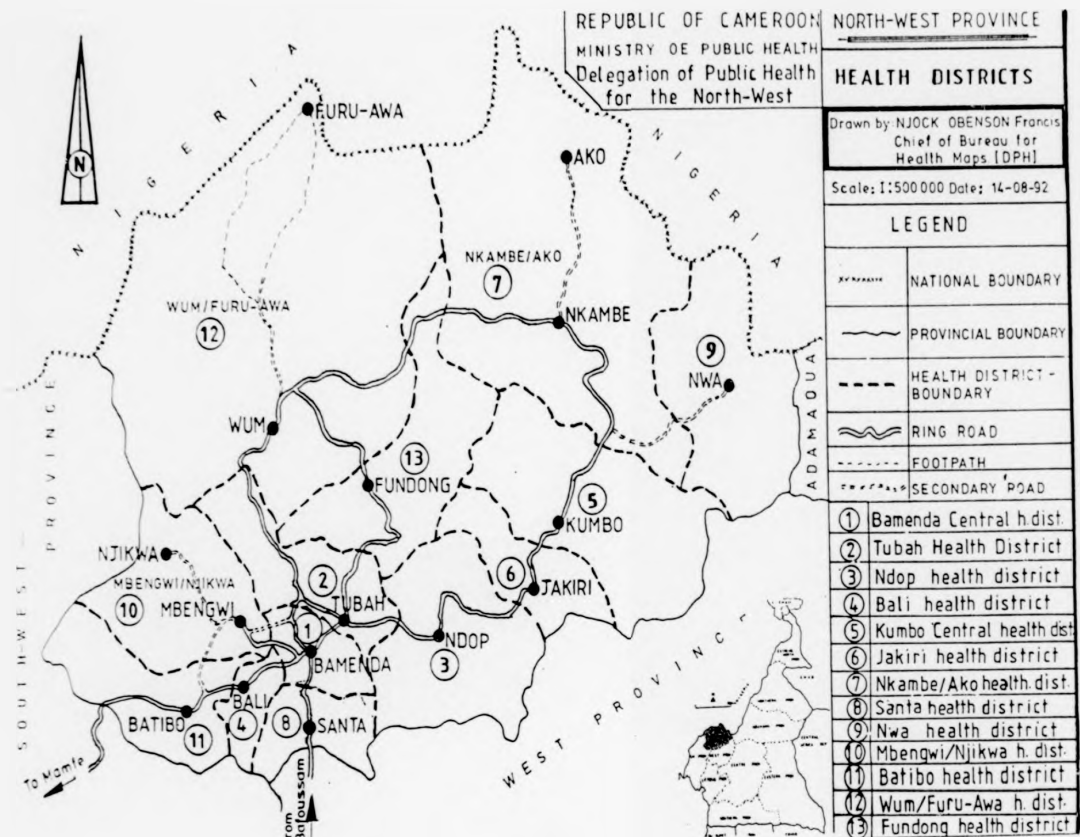
ORIGINAL



IN COLOUR



FIGURE 5.5: THE NORTH WEST PROVINCE OF CAMEROON.



The health system in the Province (replica of the MOH) is typical of many developing countries where government, mission, private health units provide health care and pharmacies sell pharmaceuticals but these services do not reach an appreciable proportion of the rural population. The traditional healers and a network of Community health posts also exist in the rural areas (some traditional healers are found in the urban areas too).

The inhabitants of the North West Province appear to have retained a powerful demand for health care, encouraged by the missionary bodies which provided and still provide curative care. This has continued to be reinforced by the private system which unfortunately is located in the urban areas. The missionary bodies have maintained their dominant positions because of their abilities to respond to local needs. In spite of the fact that the care provided by the missionary bodies is expensive, it continues to be patronised by the population.

According to government policy, each of the 7 divisions and 31 subdivisions of the province is supposed to have a hospital differing in sophistication depending on whether it is a divisional or subdivisional hospital. The government has so far concentrated only on the simple geographic distribution of health services and the associated supply and training of health workers without reference to the recurrent costs. Currently the North-West province has fifteen hospitals (10 public and 5 private (mission)) with a total bed capacity of 1788 (692 inhabitants /hospital bed), 45.4% belonging to the mission; ninety-five Health Centres (21 missions and 74 public), five Departmental Centres for Preventive Medicine (CDMPs), one mission Leprosarium and six Maternal and Child health (PMI) centres. The 31 public District hospitals should each be staffed by one or two general practitioners, nurses, and other paramedicals responsible for endemic diseases like leprosy and tuberculosis. Infact, only nine of them are fully

functional. Health centres are located in large villages and can serve one or more villages. Health centres have the official responsibilities for prenatal, delivery and post natal care, child immunization, Nutrition, water supply and sanitation. They also provide curative care and very limited inpatient care on an emergency basis only. Serious cases are referred to the hospitals in whose area of influence the health centre is found though no ambulance services exist.

The Province with 11% of the population has on the average 0.24 doctors/10000 population compared with 1.41 for the Central Province with 16% of the population. When all the health staffs were added up, the North west was the fourth lowest with 13.58 staff/10000 population as against 26.16 for the Central Province though the Ministry of health gives this as 1 doctor and other staff for 12000 inhabitants (Ministère de la santé publique, 1992). (Appendix 5.1 for more details).

By the end of 1978 when PHC started in the province, there were only 66 health posts in the Province but by 1989, about 200 of the 475 villages of the Province had been covered by the Primary Health Care project. There are at present 217 community Health Posts (CHPs) existing with 284 community health Workers and about 123 retrained Traditional Birth Attendants ⁽²⁹⁾. There are about 217 Health Committees with about 90% still functional ⁽³⁰⁾.

There were 16 Primary Health Care government paid Supervisors or co-ordinators working closely with the community health workers. The various health posts were being visited at least once a month by these supervisors. These supervisory visits to the health

²⁹ Within this area, traditional birth attendants are those who have been practising the act of child delivery in their villages for a long time. It might have been handed over from generation to generation or just acquired. Traditional birth attendants are therefore not trained but just re-oriented to use modern hygienic techniques to carry out acts that they have been doing for years.

³⁰ Functional is used here to refer to a situation where health committees hold regular meetings, at least once a month; regularly buy their drugs as soon as they run out; motivate the community health workers regularly and perform regular compound visits.

posts were sponsored financially by the German agency for technical co-operation - they made motorbikes and fuel available to the supervisors in sufficient quantities. Following the re-orientation of primary health care at the national level, the activities of the supervisors were supposed to be taken over by the staff of the various health centres in whose catchment area the health posts are located but most health centres are facing a financial crisis.

There have been several evaluations of this Germano-Cameroon Primary Health Care programme. From these evaluations it was shown that the health workers had better clinical knowledge than trained nurses in health centres (Tenambergen, 1985; Weber, 1988). This was attributed to the fact that the health workers in the posts had regular annual in-service training whereas there were health personnel who had worked for well over ten years without a single in-service training course. What has remained unevaluated has been to find out if the readily availability of drugs at moderate prices in health posts and centres outweighed the likelihood that some poor households were unable to afford them.

The health budget for the 1986/87 financial year was 110 million frs cfa but was reduced by 34.4% to 72 million frs in 1987/88 and by 61.7% to 42 million frs in 1988/89 (Ministry of Public Health, 1988; 1989). This downward trend has since continued.

Most of the people in the province are subsistent farmers. Most of the men cultivate coffee as a cash crop though production has in recent years fallen drastically since 1986.

Table 5.3 below presents the major characteristics of the North West province.
**TABLE 5.3: MAJOR HEALTH-RELATED CHARACTERISTICS
 OF THE NORTH WEST PROVINCE.**

Land Area	17,400 km ²
Population: ⁽³¹⁾	1,349,471 (1991)
No of Divisional Hospitals:	2
No of Provincial Hospitals:	1
No of Subdivisional Hospitals:	9 (Inc.2 divisional ones)
No of private (mission) hospitals:	4
No of private clinics:	6
No of Private pharmacies:	6
No of health centres:	95 (14,05 Population/h. centre)
No of CHP:	< 100
No of Doctors:	32 (0.24/10,000 population)
No of Nurses: ⁽³²⁾	900 (6.7/10,000 population)
No of midwives:	21 (0.16/10,000 population)
All trained staff:	17,784 (14.97/10,000 population)
Population/hospital	88,382
Number of Hosp beds	1,788 [13.75/10,000 population]

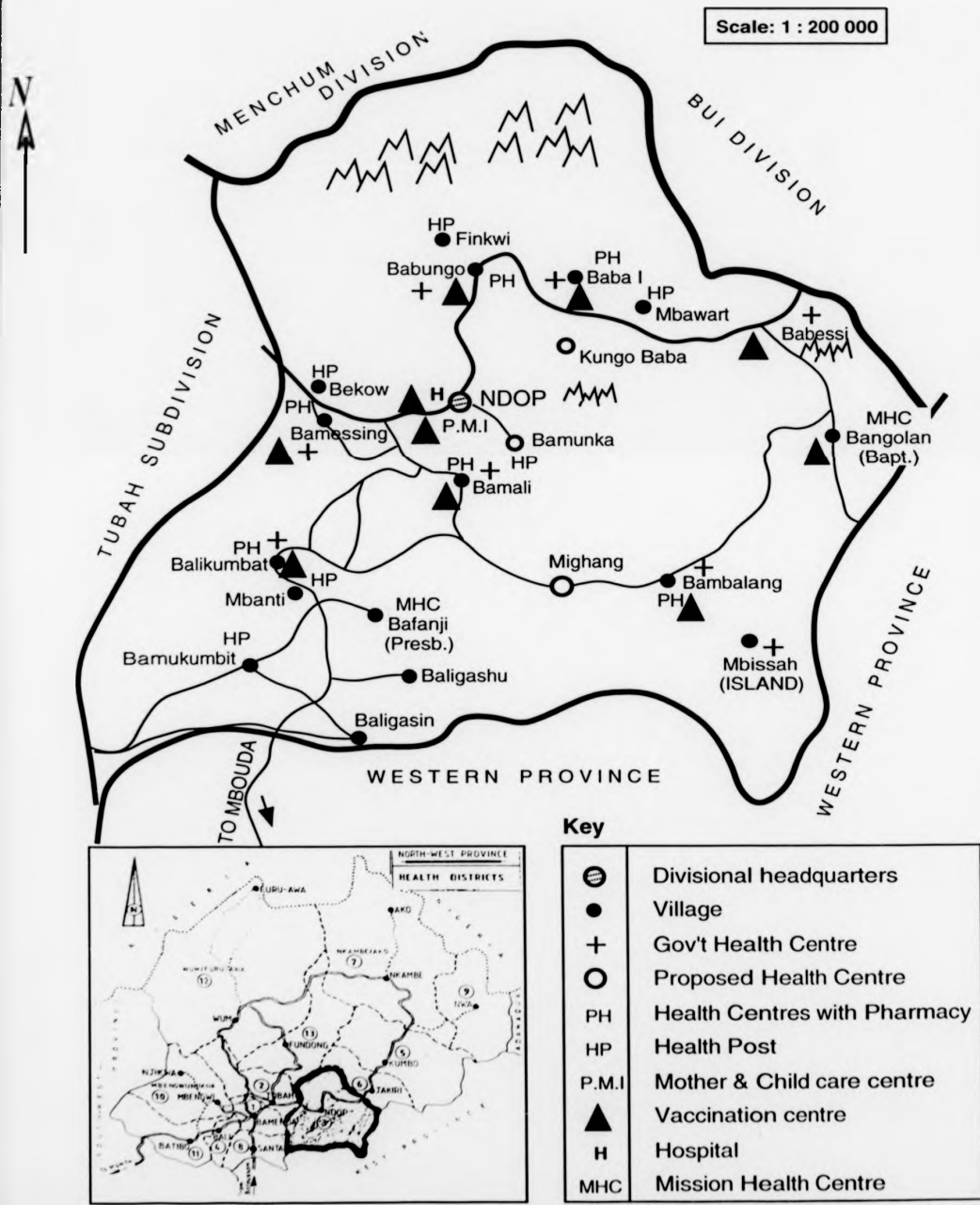
5.5.2 THE RESEARCH SITE: THE NDOP HEALTH DISTRICT.

The study site was Ndop health district, purposively chosen (Figure 5.6). It was chosen because the area is self-contained (each of the designated health areas has a health centre and there is one referral public district hospital) and the health care responsibility for the population has been taken by the government health services. It has ten health centres and 10 health posts (Appendix 5.2 for organisational setup). Furthermore, the district was well known to the author. Considering the short time within which the fieldwork part of this study had to be carried out, prior experience and knowledge of the area helped in the designing of the study and a better interpretation of the results. It was also chosen because it is sufficiently large in

³¹ Estimated from the 1987 census data.

³² Includes all the nurse aids, diploma nurses, State Registered Nurses, Staff Nurses.

Figure 5.6: Map of NGOH-KETUNJA Division (NDOP Health District)



population and even in size for one to develop a model to examine the effects of community financing on health service utilization.

Finally, it was chosen because it has characteristics of a typical rural area. It is therefore the health area that gives the administrative framework within which most health activities are delivered. The district provides an ideal setting for dialogue and planning that involves both the professionals and the non-professionals, the public and private sectors concerned with health and social development of the area.

Ndop health district is made up of 10 major villages. It was in 1991 estimated to have a population of 117,093 inhabitants with 102,950 (87.9%) living in rural areas and only 14,143 (12.1%) living in the (semi)urban area represented by the largest town. It lies to the North East of the province and it is about 50 kilometres from the provincial headquarters along a dusty untarred road running from south to the north of the Province. Ndop is easily accessible by the dusty road and many of the villages are also easily accessible for most of the year though some of them are cut-off from the main town when it rains heavily.

Ndop, the town bearing the district name, is the headquarters and houses the district hospital, offices and staff of the Administrative Divisional Officer and other government departments such as the treasury, agriculture, water and electricity boards, post and telecommunications, 2 public and 6 private colleges and a once-weekly market. There is no bank. The residents of this health district are mainly subsistence farmers with most of them, especially the women, working in rice and corn farms. The men cultivate coffee as a cash crop though production has been reduced drastically following the fall of coffee prices on the world market. Through the marketing of coffee and rice, these farmers are drawn into the economy but unfortunately suffer

from the existing adverse terms of trade and from the burden of the country's international debt.

Ndop district shares a boundary with the Western Province and as a result, it has developed into a centre for cross border exchange between the North West and Western Provinces of a variety of things not easily available on both sides of the Provincial borders.

5.6 SUMMARY.

This chapter has presented background information about the physical, demographic, administrative and economic situation of Cameroon. It has also looked at the health care delivery system at the National, Provincial and District levels.

The chapter presents Cameroon as a country that had been less concerned with the cost involved with investment in the health sector in the early 1980s because of the buoyant economic situation brought about by the high oil prices. As the decade advanced, the economy started declining due to the unfavourable terms of trade on the world market. As a result, budgets were cut and services deteriorated. Recurrent expenditure suffered most so much so that the government is now either unable to even pay workers, or supply the basics required for health care delivery.

The health care delivery system is described as being centralized giving rise to inefficient management. It is concluded that Primary health care services are therefore part of a whole system and cannot be effectively provided in isolation, even though the economy presents a country in crisis.

@. For page 129: See for example, Editorial (1992), Cameroon Post No. 109, p1-14, and Talla Blaise-Pascal (1992). Ainsi a été pillé la SCB [Société Camerounaise de Banque]. Jeune Afrique Economie [Mai] 155, 106-130.

CHAPTER 6

EXPLORING THE RELATIONSHIP BETWEEN INDIVIDUAL AND HOUSEHOLD CHARACTERISTICS AND THE USE OF HEALTH CARE PROVIDERS.

6.1 INTRODUCTION

This chapter begins with a detailed description of the socio-demographic and economic data of the whole population that was involved in the study. It then goes on to explore the relationship that probably exists between individual and household characteristics like education, sex, age, income, wealth, socio-economic status and the use of health care providers. It ends with a discussion of (i) the expenditure made by the respondents while seeking care from the different providers, (ii) sources of the money used for the payments and (iii) the reaction of the respondents to proposals of alternate sources of money to that which they used in financing their health care.

6.2 SOCIO-DEMOGRAPHIC AND ECONOMIC CHARACTERISTICS OF STUDIED POPULATION.

The total population studied was made up of 6656 inhabitants found in 1147 households giving an average household composition of 5.8 persons per household. 54 households were excluded because of incomplete data for important variables leaving only 1093 with 3441 adults aged 15 years and above. Of the 1093 households with complete data, only 603 households (55.2%) had adults reporting an illness two weeks prior to the study. When the sex by age group of the studied population is compared

with that obtained in the last National census of 1987 (extrapolated to 1993), no significant differences are seen. The population of the study sample is representative (see appendix 6.1 and 6.2). Of all the households surveyed, 36.3% had seven or more household members (appendix 6.3).

29.9% of those surveyed were Moslems and 63.8% were Christians while 6.3% (412) did not explicitly indicate their religious affiliation. 39.1% of the population surveyed were labelled as farmers, 26.9% as housewives, 13.6% as students or pupils and 20.4% as children. 58.2% of the total surveyed population described themselves as never married while only 32.1% were said to have been married or were married. Others were either divorced (2.4%), widowed (4.1%) or of unknown status (3.2%). Of all the respondents who had no schooling, there were almost two females to one male (appendix 6.4).

Economically the wealth of the population is represented by their assets. The ownership of livestock and other consumer durables are presented in appendices 6.5 and 6.6.

6.3 COMPUTATION OF HOUSEHOLD'S ORIGINAL INCOME AND WEALTH

The household's original income was estimated from the wages and non-wages of the household members. Total household income was calculated by summing up the earnings from employment and self-employment, occupational pensions of all household members, the monthly monetary value of household consumption of all home-produced foods, the family allowance from employers for all household members, the amount from sales of crops and cash crops, bank interest, scholarships

paid either by government or employers for children's education and owner-occupied monthly rent. The table 6.1 below presents the income distribution of those sick.

TABLE 6.1 INCOME DISTRIBUTION OF THOSE REPORTING AN ILLNESS (in cfa francs)

Income Quartile	Mean	Standard Deviation.	Median	Minimum	Maximum
1	14,220	4,598	15,100	0	20,547
2	24,320	2,290	24,308	20,550	28,630
3	35,259	4,290	34,761	28,767	44,598
4	81,836	50,324	69,447	44,621	382,000

It is assumed that wealth influences the demand for health care. Fabricant (1992) used factors which were discernable as proxies for wealth. In most case, wealth is highly correlated with household income though it is not impossible to see an elderly household with much wealth but little or no earning capacity. In an attempt to quantify the correlation of wealth and income, housing factors (construction materials used for houses, the nature of the floor, walls, windows and roof) discernable proxies for wealth in the study area were regressed with monthly income of the household. The results are presented in Table 6.2.

Table 6.2: WEALTH PROXIES AND THEIR CORRELATION TO HOUSEHOLD INCOME.

Variable Name	Mean	Std Dev. of mean	Corr. Coeff.	Probability	Variable definition
Number of rooms (R)	0.0467	0.2113	0.2440	<0.0005	≥10 Rooms=1, else 0
Type of walls (W)	0.1853	0.3889	0.1320	0.001	Cement/stone =1, else 0
Type of floor (F)	0.0050	0.0707	0.0844	0.039	Tiles = 1, else 0
Type of roof (RF)	0.8648	0.3422	0.0604	0.140	Iron sheets = 1, else 0
Window shutter type (WS)	0.0818	0.2743	0.2011	<0.0005	Glass shutter = 1, else 0
Ownership of house (OH)	0.9883	0.1076	-0.2301	<0.0005	Yes = 1, No = 0

Since the significance levels of the "*Number of rooms, Type of walls, Type of floor, Type of Window and ownership of house*" variables are less than 0.05, it is concluded that there is a linear association between the variable (=1) and household income compared to other variable categories (= 0). For example, there is a linear association between those who have houses with ten or more rooms and income than it is with those having houses with less than 10 rooms. The variables correlated with household income were then used for the computation of the socio-economic index as described in chapter 4, section 4.3.1.

Household assets are an indicator of wealth. Over a lifetime, households accumulate their assets which are in the form of bank deposits, land, animals and other possessions (for example see appendix 6.5 for livestock possession by socio-economic level). These increase their abilities, especially that of the wealthiest, to use health care and they can afford higher quality health care. This is possible because money can easily be raised in the form of a loan from either friends or relatives against the assets as guarantees. Some of the assets can be sold and some are directly productive e.g. land and a vehicle. With the above possibilities, availability of assets imply a better chance of being able to pay for health care.

As indicated by Akin *et al* (1985), assets can be used to improve health directly. For example, if households invest their incomes in housing, screening their windows, and improving their sanitation, their health status improves too. If assets are in the form of a car, bicycle or motorcycle, travel time can be used more efficiently. These assets are directly productive. Having assets in the form of a radio or television can also improve health status due to the fact that the households are better informed and they avail themselves of health education. On the whole, it is hypothesized that wealth and assets have a positive relationship with the demand for health care.

6.4 BASE-LINE UTILIZATION OF HEALTH CARE PROVIDERS.

The sections that follow refer only to the 603 households that reported an illness two weeks prior to the survey.

6.4.1 MORBIDITY DURING PAST TWO WEEKS.

When the question " Have you or anyone in the house been sick within the last two weeks?" was asked, those household heads who responded positively also indicated the symptoms or causes of their illnesses. This is presented in appendix 6.7.

6.4.2 ILLNESS PREVALENCE AND UTILIZATION RATES OF HEALTH CARE BY AGE.

The incidence of illness reported was equivalent to 4.6 episodes per person per year ⁽³³⁾. However, caution needs to be exercise in extrapolating bearing in mind the seasonality factor, not controlled for here. 69.5% of all the reported illnesses received some form of treatment from a professional, indicating that people in this district had high regards for medical care.

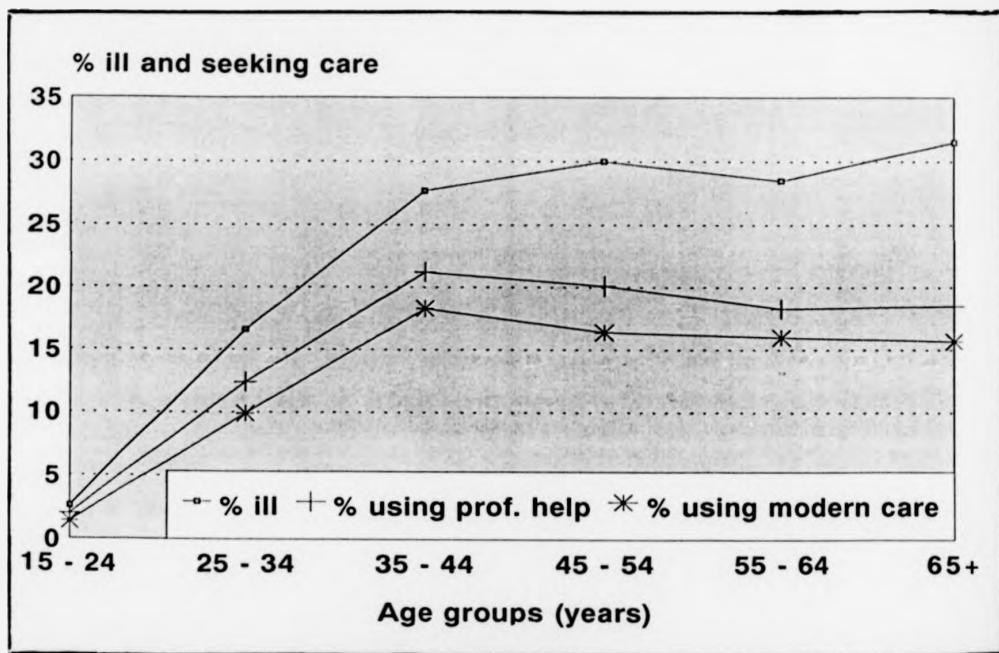
Figure 6.1 indicates the illness and utilization rates per 100 persons as well as the utilization rates of the health care providers as a function of age of those who reported an illness. The prevalence rate of persons ill during the prior 2 weeks relatively increases from 2.6 illness episodes/100 persons in the 15 - 24 years age group to a high 30 illness episodes/100 persons in those 45 - 54 age group. It decreases until 64 years of age when it rises again (also see appendix 6.8).

³³. Refers to the Number of episodes per person per year in the district. The formula used is:

$$\frac{(\text{Number using provider} * (n) \text{ periods of 2 weeks/year})}{\text{total population}}$$

(n) in this case is 26 periods of 2 weeks in a year.

FIGURE 6.1: ILLNESS AND UTILIZATION RATES/100 PERSONS AS A
FUNCTION OF AGE



The utilization rate of the "Modern" health care providers also rises with age, from 1.4 contacts/100 persons/ year until about 44 years when it starts to decrease (column 5, appendix 6.8) even though the illness prevalence rate is still rising. When the use of traditional healers is combined with that of the "modern" care providers, utilization rises with age from 2 contacts/100 persons/year until 44 years when it decreases even though the illness prevalence rate is increasing (Column 4, appendix 6.8). On the whole, the utilization rates are not as high as the prevalence rates meaning that there are people of all age groups who do not choose to use the services even though they are ill.

6.5 CHOICE OF HEALTH CARE PROVIDERS.

Table 6.3 indicates the choice of treatment from the different health care providers used by the various households.

Table 6.3: PERCENTAGE OF RESPONDENTS CHOOSING THE HEALTH CARE PROVIDERS.

Providers	Freq	Percentage (%)
Govt H. Centre	216	35.82
Govt Hospital	81	13.43
Priv. H.Centre	20	3.32
Private Hospital	34	5.64
Trad. Healers	68	11.28
Self-care	184	30.51
Total	603	100
Illness incidence and attendance in Government health centres		
% of households ill 55.2% (603/1093)		
% going to govt h.c. 35.8% (216/603)		
% of households to hc 19.8% (216/1093)		

58.1% of the respondents who sought health care did so in health units providing "modern" health care (Health centres and Hospitals) while the rest either sought care from traditional healers or undertook self-care. Almost half (49.3%) of the population reporting an illness that sought medical assistance did so in government health units with only 20.3% visiting private health units and traditional healers and 30.5% undertaking self-care.

6.5.1 CHOICE OF HEALTH CARE PROVIDER BY SEX.

Each of the households reported an illness for one individual each within the two week recall period. 89.9% of those for whom an illness was reported were men while only 10.1% were women which appears to indicate that women's illnesses were underrepresented. Table 6.4 presents the health care providers consulted as a function of the sex of the consultant.

Table 6.4: HEALTH CARE PROVIDER VISITED IN RELATION TO THE SEX OF THE RESPONDENTS.

Sex	Govt H.Units	Priv. H.Units	Trad. healers	Self- care	Total
Male	267	49	65	161	542
* row %	49.3	9.0	12.0	29.7	100
* column (%)	(89.9)	(90.7)	(95.6)	(87.5)	(89.9)
Female	30	5	3	23	61
	49.1 (10.1)	8.2 (9.3)	4.9 (4.4)	37.7 (12.5)	100 (10.1)
Total	297	54	68	184	603
	49.3 (100)	9.0 (100)	11.3 (100)	30.5 (100)	603 (100)

Of all the health care providers, the proportion of males and females reported ill using them were almost the same except for the use of traditional healers where the proportion of males was more and for self-care where that of women was more. Of all the providers, government health centres were most preferred source of care by both sexes.

6.5.2 CHOICE OF HEALTH CARE PROVIDER BY SOCIO-ECONOMIC LEVEL

Table 6.5 gives details of respondents who reported an illness classified according to whether they belonged to poorest 25%, Lower middle 25%, Upper middle 25% or wealthiest 25% as a function of the health care provider they used. If the households are grouped into POOR (Lowest 25%), MEDIUM (Lower middle + Upper middle) and RICHEST (Wealthiest 25%) households, it is noticed that 42.4% of the poorest prefer using self-care whereas 38.6% of those in the medium group and 31.8% of the richest prefer using the government health centres.

If one were to take the providers individually, it is again noticed that 53.7% and 49.4% of those who used the government health centres and hospitals respectively are those in the medium group whereas 60% and 50% of those using the private health centres and hospitals respectively are from the group of the richest. 55.9% of respondents from the medium class also use traditional healers and 46.8% undertook self-care.

On the whole, it is seen that the richer segment of respondents put together (Medium and richest) use the government and private health centres and hospitals more than the poorer segment who preferred self-care and to a lesser extent care from government health centres. However, all the providers were used by people from all the socio-economic groups. The difference in the choice of provider between the different socio-economic groups is statistically significant ($X^2 = 46.7767$, $P < 00005$, $DF = 15$).

Table 6.5: FREQUENCY DISTRIBUTION OF SOCIO-ECONOMIC LEVEL OF RESPONDENTS BY HEALTH CARE PROVIDERS UTILIZED.

Provider choice	Poorest 25%	Lower Middle 25%	Upper Middle 25%	Wealthiest 25%	Total
Govt H. Centre	52	53	63	48	216
Row %	24.1	24.5	29.2	22.2	100
column (%)	(34.4)	(35.1)	(42.0)	(31.8)	(35.8)
Priv. H. Centre	2	2	4	12	20
	10.0	10.0	20.0	60.0	100
	(1.3)	(1.3)	(2.7)	(7.9)	(3.3)
Govt hospitals	15	23	17	26	81
	18.5	28.4	21.0	32.1	100
	(9.9)	(15.2)	(11.3)	(17.2)	(13.4)
Priv. hospitals	2	6	9	17	34
	5.9	17.6	26.5	50.0	100
	(1.3)	(4.0)	(6.0)	(11.3)	(5.6)
Trad. healers	16	22	16	14	68
	23.5	32.4	23.5	20.6	100
	(10.6)	(14.6)	(10.7)	(9.3)	(11.3)
Self care	64	45	41	34	184
	34.8	24.5	22.3	18.5	100
	(42.4)	(29.8)	(27.3)	(22.5)	(30.5)
Total	151	151	150	151	603
	25.0	25.0	24.9	25.0	100
	(100)	(100)	(100)	(100)	(100)

($X^2 = 46.7767$, $P = 0000$, $DF = 15$)

6.6 EXPENDITURE FOR HEALTH CARE

6.6.1 PAYMENTS ACTUALLY MADE IN THE RECENT PAST AND REASONS FOR THESE PAYMENTS.

When participants were asked to indicate specifically what payments had been made in the recent past for health care, it became clear that a lot of money is being paid for health care by the rural mass.

Payments were made in the health units for drugs, transport fares, laboratory fees and any other payments. None of the participants mentioned time as being a cost.

6.6.2 EXPENDITURE IN RELATION TO THE HEALTH CARE PROVIDER USED.

Table 6.6 displays the expenditures associated with the different choices of health care providers. The percentage of total expenditure per provider varied between 33.3% and 68.7% for drugs, between 0.88% and 9.40% for consultation, between 5.2% and 16.4% for transportation. Most of the expenditure in the health units except for the private health centres was for drugs ranging between 33.3% of total expenditure for private health centres, 68.2% for government health centres and 65.7% for public hospitals. Those who went to the hospitals are reported to have spent almost six times more than those who went to the health centres. This is apparently due to the fact that outpatient cases going to the hospitals are in principle those that are beyond the care offered in health centres. Furthermore patients consulting in private health units pay a bill which does not differentiate between the different services for which the payment is made, hence the reported cost of drugs might include the service cost or some other charges. Another important point from the table is the fact that quite a lot of money is spent on transportation probably evidence of the poor states of the roads in the area.

The traditional healers only charges for the whole visit and do not make a distinction as to which cost belongs to drugs and which to other services. However, an attempt to separate the cost at traditional healers indicated that the consultation fees were almost like those in the health centres while the drug cost was almost half that of the health centres.

Table 6.6: THE MEAN COST OF A SINGLE VISIT TO HEALTH CARE PROVIDERS
(Cost of drugs; cost of transport; lab fees etc).

Provider	Consult fees	Drug fees	Lab. Fees	Travel cost	Service fees	Other payments	Expend/visit.
Govt health centre	185.6	2730.1	193.7	390.4	452.2	49.3	4001.3
std deviation	181.6	2805.2	221.9	432.2	1886.4	454.2	6413.7
No. of Respondents	215	215	215	215	215	215	215
% of total expend.	4.6	68.2	4.8	9.8	11.3	1.2	100
Priv health centre	67.5	2546.4	280.0	540.0	4104.5	106.0	7644.4
std deviation	134.0	4558.1	376.1	593.0	4284.9	259.8	10798.9
No. of Respondents	20	20	20	20	20	20	20
% of total expend.	0.88	33.3	3.7	7.1	53.7	1.4	100
Govt hospital	271.0	8808.6	300.7	2168.0	1467.9	391.4	13407.6
std deviation	260.6	9521.7	312.0	754.8	4599.0	1066.0	17267.3
No. of Respondents	81	81	81	81	81	81	81
% of total expend.	2.0	65.7	2.2	16.2	10.9	2.9	100
Priv hospital	1055.9	13585.7	1023.5	4614.8	7570.6	311.8	28162.3
std deviation	1586.3	12478.1	1359.4	1456.9	14322.9	1115.4	33775.9
No. of Respondents	34	34	34	34	34	34	34
% of total expend.	3.7	48.2	3.6	16.4	26.9	1.1	100
Trad. Healer	210.7	1545.9	-----	118.1	374.3	----	2249.1
std deviation	728.8	3158.0	---	327.2	756.7	----	5297.9
No. of Respondents	66	66	66	66	66 ⁽³⁴⁾	66	66
% of total expend.	9.4	68.7	-----	5.2	16.6	---	100
Self care	----	890.0	-----	-----	-----	1199.4	2089.4
std deviation	----	1164.7	--	-----	-----	5628.6	6793.3
No. of Respondents	----	184	184	184	184	184	184
% of total expend.	----	42.6	-----	-----	-----	57.4	100

³⁴. This was the amount paid in KIND to the healer for treatment. This can be added up to the treatment fees (put here under drug and consultation fees).

Table 6.7: MEAN AMOUNTS PAID BY HEALTH CARE PROVIDER TYPE.

Health unit (Provider)	Range of expenditure	Mean expenditure (incl. transport cost)	Standard deviation	Std. error of mean.
Government H. Centre	0 - 24200	4001.3	4308.0	294.5
Private H. Centre	400 - 31650	7644.4	7706.3	2059.6
Government Hospital	1300 - 85300	13407.6	12282.4	1364.7
Private Hospital	4200 - 69200	28162.3	16981.7	3209.2
Trad. healer	0 - 25200	2249.1	4108.1	505.7
Self care	0 - 7630	2089.4	1164.68	85.9

The mean expenditures presented in table 6.7 were higher in the private sector than in the government sector, traditional healers and self care. This difference might be explained by the fact that the private health units visited by most people in the health district were hospitals which were located outside the studied district whereas those who visited government health units predominantly used health centres. The table indicates predominance of low expenditures in the health centres, traditional healers and when there is self care. The private health units had to finance themselves whereas the government health units were financed exclusively by the state.

6.6.3 EXPENDITURE IN RELATION TO THE HOUSEHOLD INCOME.

Table 6.8 indicates the mean household expenditure for treatment as well as the mean monthly household income as reported.

Table 6.8: MEAN HOUSEHOLD EXPENDITURE IN RELATION TO HOUSEHOLD INCOME PER SINGLE VISIT TO A HEALTH CARE PROVIDER (AMOUNTS IN FRANCS CFA).

Income Range	Mean Income	Standard deviation of income	Mean expenditure per visit	% of income as expenditure
0 - 18413	12908	4194	2808	21.8
18423 - 25347	21931	1872	5686	25.9
25380 - 33333	28871	2571	4606	16.0
33380 - 52027	40538	5477	5307	13.1
52050 - 350260	88065	46030	7259	8.2

When assessing the household ability to pay for health care, the fact that a large part of the population does not have a regular income must be taken into consideration. It was found that 83.5% of those who were capable of contributing financially (farmers, traders, civil servants, butchers, fishermen and cattle rearers) in a household would have irregular incomes during the economic crisis. When the amount actually spent for a visit was compared to the mean monthly incomes, it was noticed that most households with low income paid a high percentage of their available monthly incomes for treatment. The treatment cost varied from 25.9% of mean income for those in the lower income group to 8.2% for those in the highest income group, as presented in table 6.8 above. The difference between the mean of the expenditure of the different income groups is statistically significant ($F = 4.0371$, $P = 0.0031$).

Table 6.9 presents the choice of health care provider by income group.

Table 6.9: CHOICE OF HEALTH CARE PROVIDER BY INCOME GROUP.

Income Range	Govt H. Centre	Priv. H. centre	Govt Hosp	Priv. Hosp	Trad. Healer	Self care	Total
0 - 18413	40 (18.5)	2 (10)	9 (11.1)	1 (2.9)	14 (20.6)	55 (29.9)	121 (20.1)
18423 - 25347	42 (19.5)	2 (10)	22 (27.2)	5 (14.8)	14 (20.6)	35 (19.0)	120 (19.9)
25380 - 33333	49 (22.7)	3 (15)	14 (17.3)	6 (17.6)	16 (23.6)	32 (17.4)	120 (19.9)
33380 - 52027	48 (22.2)	2 (10)	13 (16.0)	10 (29.4)	12 (17.6)	37 (20.1)	122 (20.2)
52050 - 350260	37 (17.1)	11 (55)	23 (28.4)	12 (35.3)	12 (17.6)	25 (13.6)	120 (19.9)
Total	216 (100) 35.8	20 (100) 3.3	81 (100) 13.4	34 (100) 5.6	68 (100) 11.3	184 (100) 30.5	603 (100)

($X^2 = 52.3765$, $P = 0001$, $DF = 20$)

It is seen from the table that the tendency is for the percentage of those who chose a given provider to increase with increasing income. This tendency is reversed when it

comes to the choice of traditional healers and self-care. Those in the lowest income group chose traditional healers and self-care more than the those in the highest income group. The difference is statistically significant ($X^2 = 52.3765$, $P = 0001$, $DF = 20$).

6.6.4 AVERAGE EXPENDITURE IN RELATION TO SOCIO-ECONOMIC LEVELS AND CHOICE OF SERVICES RECEIVED FROM PUBLIC HEALTH CENTRES.

Table 6.10 presents the expenditures made by the different socio-economic groups. The expenditures considered in this table are limited to those which were made by those who used only the government health centres, the provider which interests us most in this study. As median monthly household income increases with socio-economic level so does the value of the expenditure for health care in public health centres.

In relative terms table 6.10 suggests that people in the higher socio-economic quartile spend more on treatment, especially on drugs, compared to those in the lower group. As a proportion of the mean monthly household income, those in the lower socio-economic group spend a greater proportion on treatment compared to those in the higher socio-economic groups (20.7% of mean income for the poorest 25% compared to 10.1% for the wealthiest 25%). The range increases to between 11.4% for the wealthiest 25% of respondents and 25.79% for the poorest 25% when the opportunity cost of time is included (See appendix 6.9 for calculation of opportunity cost of time). For example, looking only at the consultation fees, it is seen that those in the higher socio-economic groups spend less than those in the lower socio-economic groups.

The general trend in the table is an increase in payments for services from the poorest to the wealthiest except for the consultation fees and the transport cost that increase from the wealthiest to the poorest. The poorest spend more on transport probably because they stay far away in the villages unlike the wealthiest who probably are near the areas concentrated with population most likely to have the health centre. It is not very clear why the consultation cost should increase from the wealthiest to the poor if it were not for unauthorised payments made by the poor to the health workers which unfortunately goes unaccounted for.

Table 6.10: MEAN EXPENDITURES MADE IN RELATION TO THE SOCIO-ECONOMIC LEVEL OF RESPONDENTS AND THE SERVICES RECEIVED IN PUBLIC HEALTH CENTRES.

Socio-econ level	Mean Income/ Month	Mean Consul fees	Mean drug cost	Mean lab. cost	Mean tran cost	Other Expend	Total spent t'men	Tment + Opcost
Poorest 25%	14220.0 (100)	162.9 (1.14)	1919.4 (13.50)	178.5 (1.26)	308.3 (2.17)	375.9 (2.64)	2946 (20.7)	3668 (25.79)
Lower middle 25%	24320.0 (100)	206.4 (0.85)	2629.6 (10.81)	172.0 (0.71)	141.8 (0.58)	794.6 (3.27)	3862 (12.1)	4355 (13.65)
Upper middle 25%	35259.0 (100)	200.8 (0.57)	2922.2 (8.29)	148.5 (0.42)	150.0 (0.43)	462.6 (1.3)	3790 (10.7)	4396 (12.47)
Wealthiest 25%	81836.0 (100)	130.0 (0.16)	3351.0 (4.1)	305.8 (0.37)	217.1 (0.27)	1625 (2.0)	5222 (10.1)	5919 (11.44)

Even though the above analysis has been done only for public health centres, the trend is common to other providers except for the traditional healers and self-care.

6.6.5 TOTAL HEALTH EXPENDITURES AND EXPENDITURES BY HEALTH CARE PROVIDER.

Table 6.11 indicates the expenditure per visit per health care provider. During the two weeks prior to the survey, average per visit expenditures ranging from 2,089 frs cfa (US\$7.9) for self-care to 23,547.5 cfa francs (US\$88.9) in private hospitals

were made. The expenditure per visit for the private hospitals is slightly less than half the mean monthly income of all those who had consulted them. The least expenditures were made by those who had consulted traditional healers or had undertaken self-care.

Table 6.11: AVERAGE HOUSEHOLD COST FOR TREATMENT FOR A SINGLE VISIT BY HEALTH CARE PROVIDER AS A FUNCTION OF INCOME.

Providers of health care	Median h.hold income	Mean h.hold income	Mean cost ⁽³⁵⁾ /visit	Expend. as % of Average income
Govt H. Centres	29019	35971	3610.9	0.10
Priv H. Centres	54266	65802	7104.4	0.11
Govt hospital	29381	46370	11239.6	0.24
Private hospital	44469	49145	23547.5	0.48
Trad. Healers	26363	38318	2131.0	0.06
Self care	25643	34496	2089.4	0.06

6.7 PRESENT SOURCE OF MONEY FOR TREATMENT AND ITS AVAILABILITY.

The household heads were asked to indicate the sources of their money for the treatment of any individual that had been sick in their household two weeks prior to the survey.

6.7.1 SOURCE OF MONEY FOR TREATMENT

Table 6.12 indicates the different sources of money used to finance health care by patients who had consulted different health care providers.

³⁵ Excludes the cost of transport.

Table 6.12: SOURCE OF MONEY FOR THE TREATMENT OF ILLNESSES ACCORDING TO HEALTH CARE PROVIDER CHOSEN.

Source of cash	All units	Hospital		Health centre		Self care		Trad healer	
	freq (%)	Freq	%	Freq	%	Freq	%	Freq	%
From Saving	200 (34.2)	34	29.8	86	37.9	49	27.2	31	48.4
Sale of belongings	254 (43.4)	51	44.7	96	42.3	85	47.2	22	34.4
Borrow from friends	28 (4.8)	6	5.3	11	4.8	11	6.1	0	0
Borrow from relatives	22 (3.6)	5	4.4	12	5.3	5	2.8	0	0
Given by someone	36 (6.2)	5	4.4	9	4.0	19	10.6	3	4.7
Pawn belongings	5 (0.9)	2	1.8	2	0.9	1	0.6	0	0
Paid in-kind	8 (1.4)	1	0.9	4	1.8	2	1.1	1	1.6
Save-sell belongings	17 (2.9)	4	3.5	7	3.1	3	1.7	3	4.7
Sell-borrow money	15 (2.6)	6	5.3	0	0	5	2.8	4	6.3
Total	585 (100.2)	114	100	227	100	180	100	64	100

Most of those who consulted the traditional healers had to get money from their savings while most of those who consulted in the hospitals and health centres had to sell some of their belongings before being able to seek care. Just looking at the level of health care provision without distinguishing between the private and public health units, it is seen that people have to forego some of their belongings such as land, and animals to be able to seek health care. Self care was not only with herbal medicines but also involved the purchase of medicines from local drug stores, markets and from peddlers hence the need for money.

It is not as clear cut as presented above because there are occasions when people have to use a combination of sources. For example, 3.5% of the people who used the hospitals sold their belongings as well as took money from their savings while 5.3% had to sell their belongings as well as borrow from friends or relatives. Occasionally people have to pawn their farms, cattle and other belongings to get

money for health care: for example, some people give part of their land against a certain amount of money for a certain length of time. The piece of land can only be returned when the concerned is able to refund what was originally given to him. Savings too are made within the context of groups (Known locally as "Njangi or tontine") which decide to meet once or twice a month. At each sitting, an agreed amount is taken from all the members and handed to one person. This continues until everybody in the group has taken a turn. Within these "njangis" people also save their money which can be suddenly needed in case of an emergency like illness. The savings are shared out with interest at the end of the year. This traditional system is very important as a prelude to a health insurance scheme.

6.7.2 THE DIFFICULTY IN FINDING THE MONEY TO PAY FOR TREATMENT.

The participants in the focus group discussions were asked whether they or any of their close relatives had experienced any difficulty in finding the money to pay for health care two weeks prior to the survey. Many of the participants went further to indicate the source of their money. They made it clear that they borrowed money from various "Njangis" in their villages and paid later with interest of about 10% per month which according to them was high. Many of the participants had foregone some of their things (sell some of their belongings, borrow money, make special sales) to be able to pay health care charges in the recent past. This type of situation was clearly illustrated by one of the participants who said that:

"I had a patient who was sick. I took the patient to the mission hospital. I was asked to give an advance. I had no money and so I went back home and gave part of my coffee farm to somebody for three years. He gave me some money which I paid the hospital".

Another case was that of a traditional healer whose child had a fracture in May 1992. The health centre referred the child to the hospital where the child stayed for two weeks. Another of his children also had an abscess and was admitted into the same hospital. His bill came up to a little more than 100,000 Fcfa (US\$400). He had no money to pay and he said

"I had to sell my cow, corn and other things to get this money to pay".

Payments had also been made to traditional healers but was mostly in kind: a bottle of oil, a bottle of castor oil, fowls, goat.

Though the general principle of paying for health care was accepted by people, many of the participants stressed that it was going to be difficult to get money for the fees especially in rural areas where health centres were mostly found. One of the participants went further at this point to explain why he thought those in the rural areas will find it difficult to get the money and proposed that "taxes should be reduced because the economy is falling" (traditional healer).

Another one, a traditional healer added that

"Poll tax is already 3000 Fcfa (US\$12) per year. If some money is added to this, where do I get the money to pay [for health care]" (traditional healer).

As can be seen from above, most of the participants, while indicating the source of their money to pay for treatment highlighted the difficulties encountered in this community to get the said money. They either borrow at high interest from friends or relatives or sell their belongings.

6.8 PAYMENT METHODS AND EXEMPTIONS FROM PAYMENTS FOR TREATMENT.

It was emphasized by the participants of the focus group discussions that wherever payments were made to "modern" health care providers, they were always made in cash and never in kind except for those made to the traditional healers. Most of them believed, payments were made to enable health units to buy drugs and necessary equipment. They did not see any possibility of paying in-kind.

When it was asked whether there were systems of exemptions made for those unable to pay, the answer was overwhelmingly negative. When asked what happens when someone is sick and there is no money, one participant said "If no money, the child will die". A public administrator during the indepth interview indicated that he knew some people who could not go to health units when ill because of no money. He made mention of the fact that many people he knew had also died because of lack of funds to seek "modern" health care.

The health workers on their part, indicated the difficulties of exempting people from paying for treatment. They bluntly said that if no money was available there was no possibility of somebody sick being given treatment. Most of the health workers agreed with one of their colleagues who indicated that:

"If a patient comes we prescribe drugs and sent him to buy from the Propharmacy. If he doesn't buy because of lack of money we don't treat him because we need this money to buy more drugs from the Primary Health Care office [central propharmacy drug store]".

Some health units of "modern" health care have attempted to put into place some ways to help the patients with the payments which must still be made while treatment is not withheld. One health worker described how his problem of not having money to pay for treatment was solved when he visited a hospital. He said that "I

begged the doctor to hold my identification papers and I went and borrowed the money". However this, according to the health personnel in the hospitals, does not appear to be effective because people who leave without paying do not bother to come back. They simply go and make new identification papers. The situation is different with those who seek care from traditional healers. In most cases, those unable to pay at the time of treatment are provided with treatment on "credit" basis or in exchange for various goods which most people have like land, palm oil, watches, loin clothes, goats, sheep, chicken, cows to name just a few.

This problem of exemption especially of the poor is a difficult one which needs further studies. At the national level, the Ministry of Public Health indicates its attachment to finding a solution by making it clear in a draft document tabled for discussion that

"the study of the ways to take care of the poor and the putting into place of health insurance will be continued in order not to generate negative social effects". (Ministère de la Santé Publique, 1992)

6.9 ALTERNATIVE WAYS OF FINANCING TREATMENT INSTEAD OF BY OUT-OF-POCKET EXPENDITURE AT TIME OF ILLNESS.

Having observed that a substantial proportion of mean monthly income is spent on health care and in some cases needing that the households borrow or forego some of their things, hypothetical alternate strategies were proposed during the household interview survey. Among these were such strategies like the introduction of health insurance and consultation fees in public health units. Household heads were asked what their reactions would be should such a situation arise in future. This was not before participants at focus group discussions had been asked their opinions about

community financing of health care. The answers are only indicative as there is no guarantee that people will behave the way they have said they would when it comes to reality.

6.9.1 OPINIONS ABOUT COMMUNITY FINANCING PAYMENTS.

When it came to discussing specifically the payments made at health facilities, all the focus group discussion participants supported the payments of fees on conditions that certain conditions were fulfilled. One view held by most of the participants was that expressed by one participant, an influential rural male, who said that

"[charges] can be O.K if only the health centres have *enough staff* and the *equipment situation* is improved".

A traditional healer talking about charges in public health facilities indicated what he felt should be "value for his money". He said

"I think that I should suffer for what I will enjoy after. I think that the government should *equip the hospital* in such a way that all the *drugs and other facilities* are available. If you are sick and may be admitted, it will make treatment easier and after that I pay the bill. That will be fine".

The above summed up the feeling of most participants who felt there was a shortage of staff in public health units. This poor staffing situation was emphasized by the experiences related by a staff working in a government health facility. The male midwife narrated his experience this way:

" I am the midwife, chief of centre [with only a laboratory technician and a wardmaid]. I consult, on Monday I have 50 - 70 [antenatal clinic] ANC cases, they will come, patients will come, they will rush.... and emergency cases. What should I do then?", he asked.

To further stress the staff shortage and indicate the trouble the few staff go through, a Nurse Aid related her most difficult practice moment in these words:

"There was a time when my chief of post was sick in his house. At night I was called to attend to a case. She had started [labour]. I got the first [twin], but the second was a problem. I sent the night watchman to call for the chief [of post] who was sick but he could not come. I asked the relatives to take the patient to hospital but they refused and I had to struggle and ended up with a stillbirth"

If there had been enough staff, a nurse would have taken the place of the midwife rather than the nurse-aider who had a 9 month's nursing aid training and has had no in-service training even since leaving school ten years ago.

The attitude of the health workers in the public health units came in for scrutiny as a factor to consider when fee paying is considered in public health units.

Stressing this, it was said that:

"If government workers behave like mission workers and they ask people to pay .. everybody will like to pay. The fear is that when the fees are collected, the people will not be well treated [as in mission health units]. The collectors [health workers] might not like to collect for free. It will instead be an opportunity to exploit the people the more" (Administrator).

Apart from the above, the participants also sounded words of caution as to what will happen if the ability of the population to pay is not taken into consideration. Their views were summed up in the words of one participant.

"Amount to be levied should be one that people can pay. If amount is high, it will scare the people away from the health centre or hospital. The people will be reluctant to go there since they see that the workers are not there to serve them".

The participants in the focus group discussions indicated their willingness to pay for health care through community financing on conditions that the staffing and equipment situations were improved. This implicitly means that the staffing and equipment situation especially in government health units is below average and would

not provide value for money for most if not all the people. One of the improvements is the availability of drugs which is already being undertaken but much more needs to be done. For example, the situation of staff and basic equipment in the public health units is a matter which needs to be tackled. Just providing drugs without competent and caring staff, without the basic equipment to administer quality care will be of no immediate good to the community.

6.9.2 HEALTH INSURANCE

As an alternative to having to forego some things or use up their savings prematurely in order to pay for treatment, the respondents were all asked if they would wish to purchase a card worth just 500 cfa francs (CFAF) [US\$1.9] (if it were introduced) which would give them a 50% reduction in their treatment bills. 68.5% of those who had reported an illness answered in the positive while 31.5% answered negatively.

Those who answered in the affirmative were asked why they would buy such a card if introduced. Table 6.13 indicates the reasons given. 95.2% of them said they would buy because it would help them if they became ill in times of hardship (i.e. when they have no money).

Table 6.13: REASONS WHY PEOPLE WHO DECLARED AN ILLNESS WILL BUY AN INSURANCE CARD IF PROPOSED TO THEM.

Reasons given	Freq	%
Help in time of no cash	412	95.2
Others (eg have many children)	11	2.5
Health centre should develop	4	0.9
No reasons	4	0.9
Don't know	2	0.5
Total	433	100

Those who answered in the negative were also asked to indicate the reasons why they would not buy such a card if instituted. Table 6.14 indicates the given reasons.

Table 6.14: REASONS WHY PEOPLE WHO DECLARED AN ILLNESS WILL NOT BUY AN INSURANCE CARD IF PROPOSED TO THEM.

Reasons given	freq	%
No trust of the service (Lose money)	61	35.9
No money to pay	89	52.4
Doctor Will not work well	5	2.9
Other reasons	11	6.5
Don't know	4	2.3
Total	170	100

It is interesting to note that the major reason was a lack of money (52.4%). This is a major barrier even with the low premium of 500 cfa francs (CFAF) proposed. A little more than a third (35.9%) of these people thought they would lose their money if they bought a card of this nature. This indicates that the people do not trust the system. It might also mean that the people thought that their probabilities of using the services are lower than the cost of the premium quoted. This is important because it would be necessary to find out the reasons and address them otherwise all efforts to institute any cost-recovery strategy especially prepayment would meet with failure. A further 2.9% thought that the doctor or nurse will not work well as (s)he would have already had her/his money. At the moment when health care is free at the point of delivery, people complain about the attitudes of staff especially in government health units. The staff have to change their attitudes and instill confidence in users of the services if there is to be any success with any cost recovery.

6.9.3 CONSULTATION FEES: WILLINGNESS TO PAY FOR HEALTH CARE

During a patient exit survey carried out in health centres in the health district, 210 adult patients at both private and public health centres were asked a hypothetical question as to whether or not they would have come if the price of a consultation was either 300 (US\$1.1) or 500 cfa francs (CFAF) (US\$1.9) (See chapter 4 for methodology of the exit survey). Table 6.15 indicates the reactions of the respondents to the different proposals.

Table 6.15: REACTION OF SURVEYED POPULATION TO THE PROPOSAL OF INSTITUTING A CONSULTATION FEE IN GOVERNMENT HEALTH CENTRES.

Health Unit used by respondent	Would you pay 300 frs Cfa		Would you pay 500 frs Cfa	
	YES	NO	YES	NO
Govt H.Centre	150 (91.5)	14 (8.5)	146 (88)	20 (12)
Priv. H.centre	38 (95)	2 (5.0)	37 (92.5)	3 (7.5)

Though higher proportions answered in the affirmative, it was seen that the percentage answering in the negative increased with an increase in the amount to be paid. It is expected that as the amount approaches that required to recover the recurrent cost, the percentage of those answering in the negative will increase substantially. When the proposed charges are taken individually, there is no significant difference between those who sought care from government health centres and from the private health centres (for 300 frs cfa, $X^2 = 0.17$, $P = 0.7429$; for the 500 frs cfa, $X^2 = 0.29$, $P = 0.5787$). However, the percentage of those who answered in the affirmative for both levels of payments was higher in private health units than was the case in public ones. This might probably be because the private units have been in the business of charging for long and the patients might have received quality care in the past and would not hesitate to answer in the affirmative.

6.10 SUMMARY.

This chapter has explored the relationship that exists between household and individual characteristics and the use of health care providers. The reactions of households to alternative methods of health care financing (community financing, consultation fees and insurance) was explored in focus group discussions. The focus group discussions showed positive attitudes towards community financing (private financing) of health care in the district. There were however reservations due to the poor economic situation which meant that the ability to pay of patients had to be seriously considered. They argued that payments have always been made and are still being made in the private sector but this was becoming a problem due to the poor economic situation of the country. The population willingly pays in the private sector probably due to the belief that they are paying for a better quality of care. Money for treatment came from either selling of belongings or from savings in most cases. Some people pawned their belonging and borrowed from friends and relatives.

The proportion of all the contacts varied from 3.3% for the private health centres to 35.8% for the government health centres. The richer segment of respondents (Medium and richest) use the private health centres and hospitals more than the poorer segment who preferred self-care and traditional healers. The government health centres supposed to be free at the point of delivery, were used almost equally by all the socio-economic groups.

The lower socio-economic group spend a greater proportion of their income on treatment compared to those in the higher socio-economic groups. A little less than a third of the total surveyed population said they will not buy an insurance card if introduced. 52.4% of those who said they will not buy the card indicated they lacked

money while a little less than a third indicated they will lose money which either indicates that they have no confidence in the health care delivery system or they thought they had a lower probability of using becoming ill to use the health units.

CHAPTER 7

EXPLORING THE RELATIONSHIP BETWEEN HEALTH SERVICE CHARACTERISTICS AND THE USE OF HEALTH CARE PROVIDERS.

7.1 INTRODUCTION.

This chapter looks at the characteristics of the health care providers and how these characteristics affected their use by the population. Only those characteristics that are thought to be amenable to change like distance, total time spent for treatment, price of services are discussed. This is because, in the short term, changes to the factors that affect the choice of health provider have to be proposed. It would be useless treating factors that are beyond our control. For example we have no control over the weather, hence it would be inappropriate to include weather. This is by no means saying that such factors like weather and others are not important.

First and foremost, the chapter starts by ascertaining whether or not the health care consumers knew and utilised the different health care providers in their area. A closer look at the decision-making criteria and the process of choosing a health care provider in case of an illness by the population then follows. The reasons as to why a particular health care provider was chosen rather than another are then presented and discussed. As evidence to support the claim made by most of the participants of the awareness of the different health care providers in the district, the chapter continues with the participants relating their most recent experiences or that of any of their close relatives with any of the health care providers in the district.

The chapter ends with a discussion of the relationship that exists between some of the health care provider characteristics and their utilization.

7.2 AWARENESS OF EXISTENCE OF HEALTH FACILITIES IN AREA

All participants of the focus group discussions were aware of the existence of health care providers in most of the areas of the health district. This is important because it has been seen that one of the many reasons the poor do not use a health facility is their lack of knowledge of their existence. In a study of the urban poor in America, it was noted that most people who had neighbourhood centres nearer to them used hospital-based ambulatory care which was further away because most had never had any knowledge of the existence of these centres (Skinner *et al.*, 1977).

When participants were asked to say how far away the health providers were from their various villages, one participant answered by saying:

" [I am] very close to the health centre and the traditional healer is close by "(a rural woman).

Another woman went on to quantify the distance by saying that:

"I am half a kilometre from the health centre and the traditional healer is my neighbour" (an influential rural female).

Whereas the traditional healers were "next door" neighbours to most of the participants, the distances from health centres to the different villages varied from half a kilometre to about five kilometres. The hospitals, on the other hand, were more than 15 kilometres away from the different villages. On the whole, the traditional healers were the nearest health care providers to most of the participants and of course to the population.

The participants were also aware of the services provided by the various health providers and were able to differentiate between the services available at the hospital, health centre and traditional healer. Most participants were not only aware of the

existence of some services in the health units but were also aware of what they termed the "good and bad" things about the different health care providers. These attributes of the different providers like the services available, their treatment practices, the attitudes of their staff were used by the participants to evaluate these providers.

The hospitals unlike the health centres were able to perform operations, transfusions and there was always a staff to consult even out of working hours. This was classified as a good thing for the hospital. On the other hand, there were some things which the participants indicated were bad with the health providers. The health centres were frowned at by most participants because of the length of time "wasted" by health centre staff before treating or referring a patient. An influential male participant related one of his most recent experiences with the health centre staff by saying that

"At health centre if something is more than them they waste a lot of time before telling you to go to hospital. Some stuff you with medicines and injections. After sometime they give you a bill to pay for all you have received and then ask you again to go to the hospital where you spend more".

As concerns the hospitals, the differences that seem to exist between the doctors and the nurses was a point of concern for the participants. Most important was the fact that "some nurses prescribe drugs which the Medical Doctor does not approve of and so the patient will have to spend again to buy what the doctor prescribes [later]". It was further indicated by a participant that "those incharge of consultation in the hospitals are very slow. This sluggishness may cause the disease to kill one before you are sent to see the doctor".

As concerns the traditional healers, it was stressed by a majority of the participants that the traditional healers differed from the others because they "were experts in the treatment of fractures, poison, epilepsy, madness and snakebite". However, most participants did not like the fact that "some traditional healers give

medicine to take away lives"⁽³⁶⁾ and the fact that "some insist on treating illnesses that they have neither an idea about it nor the necessary skills to handle such diseases".

7.3 DECISION-MAKING PROCESS OF CHOOSING A HEALTH CARE PROVIDER.

After considering the different choices with which the participants or their relatives had an experience, it became clear that the respondents had the possibility of making a choice from among six alternatives which included: (a) Traditional healers (b) Self care (c) Government health centres (d) Government hospitals (e) Private health centres (f) Private hospitals. It was then easy to analyze the decision-making criteria and discuss the process of choosing a health care provider in this area of the province.

Though this study is not about the illness treatment decision-making as such, this section briefly looks at how and by whom the decision is taken. This might help us understand better the reasons or factors that influenced the people to choose one health care provider and not the other. It is also of importance when it comes to discussing the introduction of community financing at the health centre level. From the focus group discussion, it transpired that people when sick did not think of a health unit as belonging either to the government or mission (private). They looked at all the health units as being there to care for them notwithstanding the level, hence they believed that they could go to which ever was within their reach. In the final analysis, a patient in this area sees six different options (with no hierarchy) from which to

³⁶ It is generally believed that traditional healers can give people some herbs that can be used to kill others with. These herbs are either put into drinks or food or simply left on a road for the targeted person to cross over. There is no hard evidence to support this view.

choose one. However, in practice this is more complicated because when somebody is sick he or she might decide to go to a health centre near his or her home but after a few days may decide to visit a traditional healer for one reason or the other. This study looks only at the first visits to a health care provider and does not look at such sequential choice of health care provider.

One important dimension, though not treated in this study, is that of the socio-cultural environment in which the study is taking place. If someone believes that an illness is, for example, due to the fact that his late grandmother is angry because he did not sacrifice a lamb during her death celebration, he will certainly seek treatment from the traditional healer. If on the other hand, he has seen or been involved in the treatment in the health centres or hospitals of an ailment for which traditional healers had earlier been consulted, the tendency is for him to go to either a health centre or hospital in case of a similar illness. This aspect was not looked at since it would have involved a long term ethnographic study of the health district and its population.

7.3.1 WHO DECIDES THE USE OF A PARTICULAR HEALTH CARE PROVIDER?

The society in which the study is carried out is a patriarchal one. Inheritance follows the father and not the mother. Because of this situation, the male head of the household is seen as the bread winner for the family. The female takes care of the children and the farms, earning nothing. It has been accepted that the family head (the male in most cases) is culturally supposed to cater for the financial needs of the whole family. When the participants were asked about who makes the decision to take a patient to a health unit one woman indicated that:

"The husband decides on whether a child should be taken to the hospital or not" (traditional healer)

One other traditional healer indicated that " A woman takes the advice of her husband and in the absence of the man the woman can decide. I leave money when leaving the house for the farm or for work". Another male participant highlighted the fact that the male household head had the financial power by indicating that "In my absence my wife takes care of any one sick at home by taking him/her to the health centre. She then leaves a message behind for me about it. When I return home I will get some money and follow her to the health unit. I am a native Doctor myself".

A male health worker indicated that "I make my wife know that I make the decision and only in my absence does she decide to take care of any sick child". This attitude was also confirmed by one of the influential women who said that

"My husband has told me to make the decision only in his absence, if he is at home I have to inform him" (influential female).

A female participant went further to explain why she thought the male household head should decide. she said

"Formerly my husband used to prefer traditional medicine but now has changed. He does not like to see any of his children sick. My husband is the household head [and takes the decision] (female health worker).

From the various interventions of the participants, it is concluded that the household head (husband) is the person who takes the decisions about the health care provider to visit in case of an illness in the household. It is only in the absence of a male household head that the female takes the responsibility to decide. In some cases the decision is passed on to the whole family rather than being taken by an individual, the household head (Ankrah, 1993). This happens especially in situations where the household members have evaluated the prognosis of the illness and thought it was very poor.

In one case, a traditional healer who has practised for over 35 years said

"I know a man who had a patient. The man's family decided to take the child to the native doctor. The patient was not well treated so the family sat down again and decided that the child should rather be taken to the health centre".

In the final analysis, when it comes to decisions that will involve any expenditure, the decision-making power goes to the one who brings in most of the family resources or to the one who is respected by all household members who in most cases is the household head.

7.3.2 DECISION CRITERIA.

Having seen in the previous section that the decision-making powers rest with the household head, this section looks at those factors they use to make decisions. When it concerns illness, people are seen to rely on some specific things for making decisions as to which provider to visit for treatment. Since this study is about provider choice and impact of community financing on the utilization of health care, it would be necessary to find out the specific things that people consider before making a provider choice. It would then be necessary to find out how cost (if it is one of the things considered) affects the decision.

Eliciting the decision-making process required that participants consider all choice contrasts. After learning of the most recent experiences of the participants or their relatives with the health care providers, a basic question was put to the participants. It was that of "paired comparison" as follows:

"Some people chose rather than Are there any particular reasons for this?".
[all contrasting pairs of health care units in the health district were substituted].

The following excerpts summarise the various reasons that were repeatedly given by a majority of the participants.

("Why choose a health centre instead of a hospital?")

"To reduce cost (transport, feeding)"

"Ailments that can be handled by a health centre: If not serious, it will be a waste of time to go to hospital [with them]".

("Why choose a traditional healer instead of a health centre?")

"A good knowledge of where a native Doctor resides and the types of illnesses he takes care of. Certain types of pains - I know man treats these. Knows traditional healer treats particular disease hence no waste of time to go to hospital for illness like fracture; *nearness* of traditional doctor".

"At native doctors, we go to look/ask for the "cause" in the African sense of the word"

"Native doctors are nearer and can treat assorted diseases"

"Native doctors find out what is wrong, find the medicines before establishing the cost".

"Some people believe an illness is caused by witchcraft which can be treated by native doctor".

(" Why choose self care instead of a health unit?")

"If illness is common, not serious and can be managed, we cook some traditional herbs and wait for results. If illness persists, we move ahead to modern medicine (health centre)."

The above is a response which was strongly supported by one of the female participants with a child who was less than five years old. This response summed up the process undertaken by most people in her village when an illness strikes a member of their household. From the response accepted by most of the participants, it was clear that in most cases treatment is not sought from multiple providers at once but sequentially. One provider is visited until it is thought that he had failed - *"we cook some traditional herbs and wait for results. If illness persists, we move ahead to*

modern medicine". This is a situation which has been reported in other studies (Dunnell et al., 1972).

During the indepth interview, it came out clearly that cost was one of the important considerations. A senior government administrator stressed that:

"Before you take a decision, you have to calculate a few things. If you want proper care, you would have to have the *money to pay* for it. You must be able to have the means to carry yourself to your destination [means or cost of transport]. But if it is a matter of cannot help, without the means, you have to go to the nearest anything [health provider] which will sustain you while looking around for what you can do. If all the means were available I will look for a health centre/hospital where the place is clean. Where people take good care of patients, where I can find what I need: where you can easily get the drugs you are prescribed".

Cost came out as a cause for concern (though not the only one) for most people who sought care from any of the health care providers in the district. One participant during the discussion of his decision-making process, indicated that he will:

" First think of *money*, transportation" (influential village leader).

Another rural female participant added that

"with no *money* in hand, use locally made concoctions while looking for money to take patient to health centre".(rural female).

The participants indicated that self-care was an option usually considered when the illness was a common one but not serious and when there is no money to seek modern health care. If money is available the providers of "modern" health care will be the first place of call rather than self-medication or consultation of traditional healers.

7.3.3 FACTORS THAT INFLUENCE THE CHOICE OF HEALTH CARE PROVIDER: REASONS FOR CHOICE.

This section discusses in detail the decision-making criteria mentioned above. From the "paired comparisons" to find out why people choose one provider rather than another, factors that influence the choice of a health care provider were indicated. These factors, assumed to influence the choice of health care provider, were used to design the questionnaire for the household interview survey in general and in the coding of most of the questions in particular. The results of the household interview survey as concerns the factors that influence the choice of health care providers are presented in chapter 6 (for individual and household characteristics), in section 7.6 of chapter 7 (for health care characteristics) and in chapters 9 and 10 (for health provider, individual and household characteristics).

Four themes emerged from the discussions with the different groups. These themes were (i) Cost of treatment and availability of cash (ii) Cause and seriousness of the illness (iii) Whether home treatment of the illness is known or unknown and (iv) the attitudes of the health staff in public health facilities.

(A). The COST of the treatment and availability of money to pay.

If the cost is known to be high and there is money to pay, the probability of choosing a "modern health unit" was high. If, on the other hand there is no money, that of choosing either self-care or a traditional healer is high. Cost here does not only refer to the money that is paid to the provider but also refers to transportation cost and opportunity cost of time.

(B). The CAUSE AND SERIOUSNESS of the illness.

If the illness is serious as evaluated by the household members, the probability of going straight to hospital is very high. In any case if the cause of the illness is

thought to be unnatural (witchcraft for example) the probability of going to the traditional healer are higher but if it is natural, the chance of choosing a modern health provider is higher but the level (health centre or hospital) depends on the seriousness of the illness. In case of a serious illness, the probability of going to a "modern" health care provider is higher, though no distinction is made between the hospital and health centre levels in most cases.

(C). If the HOME TREATMENT of the illness or a similar one is known.

In case a member of the household or a friend has had a similar illness in the past, the chances that the family will buy similar drugs to the ones used earlier is higher. Drugs which are smuggled into Cameroon from neighbouring countries are freely available in village markets and in medicine stores. In the village markets one can hear traders loudly announcing the availability of drugs for a range of ailments. The conditions of these drugs cannot be guaranteed: some are expired, some capsules contain no active ingredient but only contains starch (Editorial, West Africa, 1992). This situation of inappropriate availability of drugs coupled with inappropriate prescriptions has been said to contribute to the inadequate health services which many have attributed only to insufficient funding alone (Michel, 1985).

(D). The ATTITUDES of the Health Workers.

Apart from the above factors, the attitudes of the health workers was also seen by the participants to be very important in the decision-making process of households. The unfriendly nature of health personnel in public health facilities was highlighted by most participants. In one case a female participant related her last experience of poor reception in a government hospital which made her resent public health facilities in this way:

"I brought my child to the hospital. I was sent to go and call the doctor who could not come because it was out of working hours. The child died".(influential rural female).

Another emphasized that

" patients brought at night have to wait until the next day [or directed to the nearest private health facility]" (influential rural male).

Talking about the mission health facilities to stress the differences with government facilities, a rural female participant indicated that

"patients are handled like eggs [in mission health units] unlike in government hospitals" (rural female).

"The mission hospitals really handle cases well but with the government hospitals, the staff are rude. There was a situation when one of my sister-in-law was sick in the hospital. We called the man in charge to come and check because she had vomited but he never bothered to come and find out until we had to rush for the doctor. But the mission hospital, take good care of patients than government hospitals."

To emphasize the importance of the poor attitudes of the workers of the public facilities, a lady compared them to traditional healers. She said that the traditional healers

"take very good care of patients since they demand much money. They provide lodging and are always present" (rural female).

One aspect of the attitudes of the health workers of the public sector which was highlighted by participants was the habit of collecting unauthorised money from patients. As evidence of this, health workers in some public health facilities still asked patients to pay money for private drugs even though the health facilities had propharmacies from which patients could buy their drugs. When this was posed as a problem to the health workers, one of them confirmed the claim and went on to explained that:

" Sometimes drugs are not available at the propharmacy but a worker might have this drug and may ask for some compensation. E.g. Xylocaine, a drug used for stitching wounds may not be available and

so the nurse there may have it and will ask for something as compensation" (health worker).

When an important public administrator was asked if the administration was aware that illegal payments were made in the public health facilities by patients [in principle health care in public health units is free, except for the purchase of drugs by the patients], the administrator replied:

"[Officially] we are not aware but I know they pay some money. I cannot say what the rate is and I have not had time to ask. Sometimes they say pay in cash or in kind. Sometimes they give soap, toilet roll and some money".

The comments about the attitudes of the health staff were important because the attitudes appear to represent some aspects of the "quality of health care" expected by the population. Many people who chose the mission health facilities probably did so because from their previous experiences or those of their relatives, they had realised that staff members of mission health units behaved better and were more welcoming to patients than those in government health units.

7.4 RECENT EXPERIENCE WITH HEALTH CARE PROVIDERS.

Each member of the groups was asked to relate his or her most recent experience with a health care provider or that of a close relative . The experiences were varied; some were well treated while others felt they had not been well treated. According to the participants of the focus groups, being well treated is not only limited to the outcome of the medical prescription given but also relates to the attitudes of the staff of the health unit. A participant, for example stressed the fact that he had not been well treated by saying that "the staff of the health centres are not serious with patients. They laugh at patients and at the way they dress instead of helping them".

Furthermore it was also indicated that the concept of "not being well treated" in a health unit might simply refer to the fact that the patient had been to the health unit more than once but could get no help because of the lack of basic equipment and the lack of a technician in places like the laboratory or the pharmacy. To further stress the concept of "not being well treated" a female participant indicated that

"Some attendants in the health centres are not respecting patients. They keep you waiting outside for long before attending to you".

On the other hand the concept of "being well treated" refers to the way the patient is received in the health unit as well as to the outcome of the treatment prescribed to the patient.

Most of all the participants agreed with other participants who narrated their good experiences in hospital, health centre and at traditional healers in the following way:

"Recently my two children were sick of malaria and they were not well treated at the health centre. I had to take them to the General Hospital, Ndop and there they got well treated".

"My child was getting weak, with no fever or headache so I asked my wife to take her to the health centre. There she was well taken care of and she got better".

"One of my wives had a terrible illness. Both the health centre and hospital in Ndop and Nso respectively couldn't cure her. The attendant at the health centre asked me to take her to Nso. At Nso the Doctor said I should try a healer who had my wife well treated and she even gave birth afterwards safely".

Unfortunately, some people also had bad experiences especially in government health units. A health worker in a government health unit highlighted the plight of most of the other participants (especially the non-medical related participants) when she narrated one of her experiences which she classified as the worst encounter in her life with the public health care delivery system. She had taken her child for admission

in the provincial hospital and what she noticed surprised her. In her own words, she said

"I Had child who was sick and took child to Provincial Hospital. I saw the system of work [and was shocked]. The night nurse did not know that I was of the [same] profession. Nurse just came and took the Bed head ticket (BHT) and put the vital signs: 4 days no stool passed but on BHT mention was made of fact that stools had been passed daily".

If the above situation happens to someone who works in the system, one only has to imagine what goes on with the bulk of the population that have little or no medical knowledge.

7.5 REASONS WHY THE CHOICE OF A PARTICULAR PROVIDER WAS EITHER MADE OR NOT MADE.

It has been seen in sections above that people are aware of the existence of 6 alternative health care providers (self-care taken as one) and that decisions are made by the household head as to which provider to consult. This section looks critically at the reasons behind the choices made by the household heads given during the household interview survey. Much use was made of the answers to the decision-making criteria and the factors that affected the decision to consult a particular provider and not the other as discussed with participants during the focus group discussions (See Section 7.3).

Those who had reported an illness and had visited a provider of health care were asked what had attracted them to the particular provider they consulted. Using data from the household interview survey, the reasons as understood by the respondents were analyzed by socio-economic groups.

7.5.1 WHY PATIENTS HAD BEEN ATTRACTED TO HEALTH CENTRES.

Table 7.1 indicates the reasons given by those who had visited health centres in relation to their socio-economic grouping.

TABLE 7.1: WHAT ATTRACTED RESPONDENTS TO CONSULT IN HEALTH CENTRES IN RELATION TO THEIR SOCIO-ECONOMIC GROUPS.

Providers =====>	Public health centres					Private health centres					
Reasons for consulting	P	L M	U M	W	TPUB	P	L M	U M	W	TPRI	TPUB + TPRI
Accessibility (nearest facility)	43	46	52	27	168 (81.2)	0	0	2	5	7 (43.8)	175 (78.5%)
Cost (less expensive)	0	1	2	4	7 (3.4)	0	0	0	0	0	7 (3.1%)
Better care (nurses, drugs, quick)	6	5	6	14	31 (14.9)	2	2	1	2	7 (43.8)	38 (17%)
Free treatment (available in govt hc)	0	0	0	1	1 (0.5)	0	0	0	0	0	1 (0.4%)
Others	0	0	0	0	0	0	0	0	2	2 (12.4)	2 (0.9%)
Total	49	52	60	46	207* (100)	2	2	3	9	16** (100)	223 (100)

KEY: P = Poorest 25%; LM = Lower middle 25% ; UM = Upper middle 25% ; W = Wealthiest 25%
TPUB = Total Public health centres; TPRI = Total Private health centres.

TPUB + TPRI = Total of public and private health centres.

* = 8 respondents who had consulted in the public health centres did not indicate what had attracted them there.

** = 4 respondents in the private health centres did not also indicate what had attracted them there.
Numbers in brackets are percentages.

Most of those who had consulted in a health centre (78.5%) indicated that they had been attracted by the fact that the health centres were near to their place of residence. Better care (presence of a nurse, presence of effective drugs) came in second place as having attracted 17% of the respondents. The fact that the health centre cost was low compared to that of other providers only attracted 3.1% of the respondents. However when the respondents were divided according to whether a public or private health centre had been consulted, it was noticed that 43.8% of those who had consulted at the private health centres did so because of the better care

thought to be provided compared to only 14.9% of those who had consulted at the public health centres. Since fees are paid in the private health centres, there was no one who had indicated that they had been attracted by cost compared to the 3.1% in the public health centres. In all the socio-economic groups, the important factor that attracted people to consult was the nearness of the health units to their places of residence (easy accessibility): 81.2% of those who consulted in the public health centres as against 43.8% of those in the private health centres. Unlike in the public health centres where most people consulted only because of accessibility (facility was the nearest), those in the private health centres took other things like the quality of care into consideration.

7.5.2 WHY HOUSEHOLD MEMBERS WITH AN ILLNESS WERE ATTRACTED TO CONSULT IN THE HOSPITALS.

Table 7.2 indicates the main things that had attracted people to visit the hospitals. Those who had indicated they had visited the hospitals were specifically asked what had attracted them there.

TABLE 7.2: WHAT ATTRACTED RESPONDENTS TO CONSULT IN HOSPITALS IN RELATION TO THEIR SOCIO-ECONOMIC GROUPS.

Reasons for consulting	Public hospitals					Private hospitals					TPUBH + TPRIH
	P	L M	U M	W	TPUBH	P	L M	U M	W	TPRIH	
Accessibility	2	1	0	6	9 (11.1)	0	0	1	0	1 (2.9)	10 (8.7)
Better care	4	4	2	13	23 (28.4)	1	4	6	12	23 (67.6)	46 (40)
Polite staff	1	0	1	1	3 (3.7)	1	0	1	2	4 (11.8)	7 (6.1)
Others	8	18	13	4	43 (53.1)	0	2	1	2	5 (14.7)	48(41.7)
No reasons	0	0	1	2	3 (3.7)	0	0	0	1	1 (2.9)	4 (3.5)
Total	15	23	17	26	81 (100)	2	6	9	17	34(100)	115(100)

KEY: P = Poorest 25%; LM = Lower middle 25%; UM = Upper middle 25%; W = Wealthiest 25%

TPUBH = Total Public Hospitals; TPRIH = Total Private hospitals

TPUBH + TPRIH = Total of public and private hospitals.

In all the socio-economic groups, better care provided by the hospitals (existence of a doctor, x-ray machines and laboratory) attracted many of the respondents who had visited the hospitals. The quality of care (better care) attracted many more people to the private hospitals than to the public ones: 28.4% for the public and 67.6% for the private hospitals. Examining the socio-economic groups, it is seen that most of those in the wealthiest group who had consulted in the public hospitals were attracted by the quality of care whereas those in the other groups were attracted by other things such as knowing somebody in the health unit and having a friend who had been treated in the unit. This is in direct contrast to the fact that for those who went to the private hospitals, the better quality of care was the thing that had attracted everyone from all the socio-economic groups. It is therefore not strange to see that a greater proportion of those who consulted the public hospitals indicated other reasons. Among these reasons are things like the household member knowing a doctor or a nurse in the hospital, the respondent having a relative near the hospital. It also included reasons like the expectation of special treatment.

7.5.3 WHY HOUSEHOLD MEMBERS WITH AN ILLNESS WERE ATTRACTED TO CONSULT THE TRADITIONAL HEALERS.

Table 7.3 indicates why the traditional healers had been attractive to those who had effectively consulted them.

TABLE 7.3: WHAT ATTRACTED RESPONDENTS TO CONSULT TRADITIONAL HEALERS IN RELATION TO THEIR SOCIO-ECONOMIC GROUPS.

Reasons	P	LM	UM	W	Total
Accessibility (nearest facility)	15	15	5	2	37 (54.4)
Flexible charges	0	1	1	3	5 (7.4)
Can cure disease	1	4	8	9	22 (32.4)
Referred to see healer	0	0	1	0	1 (1.5)
Other reasons	0	2	1	0	3 (4.4)
Total	16 (23.5)	22 (32.4)	16 (23.5)	14 (20.6)	68 (100)

KEY: P = Poorest 25%; LM = Lower middle 25% ; UM = Upper middle 25% ; W = Wealthiest 25%

Most of the respondents who had consulted the traditional healers indicated they had been attracted by the nearness of the healers to their residences (54.4%). This goes to confirm the fact that the respondents during the focus groups indicated that the traditional healers were their nearest neighbours in the villages. Almost a third of the respondents who consulted the healers indicated that they were confident that only the traditional healer could cure their illness (32.4%). The majority of those who believed very strongly that the traditional healer could cure their disease were from the wealthiest 25% (40.9%) and the upper middle 25% groups of respondents (36.4%). As can be seen, the poorest respondents who live in the villages consulted the traditional healers because they were nearer to them whereas the wealthiest who in most cases live in urban areas consulted them because they believed very strongly that the healers could cure their ailments.

As can be seen from the tables above, accessibility and the better quality of care given by the different providers were the important factors that attracted most of the respondents to consult the health centres, traditional healers and hospitals. Those who chose the public hospitals had been attracted by things other than either accessibility or the quality of care rendered.

Even though accessibility and better quality of care were given by those who had effectively consulted the various health providers as the main factors that attracted them, it was necessary to find out exactly what other factors pushed people to seek health care. In this respect, it was deemed necessary to use "paired comparison" to get the reasons why certain choices were not made. Respondents who had consulted for example health provider "A" were asked why they had not consulted health provider "B". Tables 7.4 - 7.6 indicate the various reasons or factors that are assumed to have influenced peoples' decision to seek health care from traditional healers, private and government health units respectively.

7.5.4 WHY TRADITIONAL HEALERS WERE NOT CONSULTED.

Table 7.4 presents the reasons why the traditional healers had not been consulted.

Table 7.4: REASONS WHY TRADITIONAL HEALERS HAD NOT BEEN CONSULTED BY THOSE WHO HAD CONSULTED OTHER PROVIDERS IN THE DISTRICT.

USERS OF====>>	Health centres		Hospitals		Self-care	
	FREQ	%	FREQ	%	FREQ	%
Accessibility (far away)	4	1.7	1	0.9	12	6.5
Services (earlier experience bad)	22	9.3	14	12.2	17	9.2
Price (expensive, no money)	3	1.3	1	0.9	53	28.8
Preferences (cannot cure)	80	33.9	47	40.9	47	25.5
Other reasons	114	48.3	46	40.0	38	20.7
No reasons	23	9.7	6	5.2	17	9.2
TOTAL	236	100	115	100	184	100

It is seen that of all the respondents who had consulted in the health centres, 1.7% said they did not consult a traditional healer because he was far away, 9.3%

indicated that they had earlier had a bad experience with traditional healers, 1.3% indicated they had no money to consult a traditional healer and a great proportion (33.9%) indicated that the traditional healer could not cure their ailment. While the majority of those who had self-care (28.8%) indicated that their problem was a lack of money, 40.9% of those who had consulted in the hospitals indicated that they thought the traditional healer could not cure their illnesses. The "other reasons" category appears to be high because it included such reasons as "the presumed ability of traditional healers to kill, the healer located in area not to be visited due to a land dispute etc" which could not easily be classified into any of the existing categories.

For most of those who chose the health centres and hospitals, they said the traditional healers were not chosen because of other reasons than the cost of services offered. They believed that the traditional healers could not cure their ailments. However, those who had self-care did not like going to the traditional healer because they believed that traditional healers charge high prices among other reasons as indicated in Table 7.4 above.

7.5.5 WHY PRIVATE (MISSION) HEALTH UNITS WERE NOT VISITED.

Table 7.5 indicates the reasons why the private health units were not consulted by those who had self-care, those who had consulted in government health units and traditional healers. 53.3% and 51.5% of those who had self-care or had consulted traditional healers respectively indicated they could not consult the private health units because of the high price charged by them. 51.1% and 33.3% of those who had consulted in government hospitals and health centres respectively also gave the high price in private (mission) health units as having deterred them. However price was not the only deterrent because 58.9% of those who had consulted in government health

centres thought accessibility to the private health units was more of a deterrent of utilization to them than price.

Table 7.5: REASONS WHY PRIVATE HEALTH UNITS HAD NOT BEEN CONSULTED BY THOSE WHO HAD CONSULTED OTHER PROVIDERS IN THE DISTRICT.

Those who used ====>>	Government				Private (Not Modern/Mission)			
	Hospitals		Health centres		Self-care		Trad. healers	
Reasons given	Freq	%	Freq	%	Freq	%	Freq	%
Accessibility (too far away)	32	39.5	126	58.3	42	22.8	24	35.3
Services (earlier bad experience)	1	1.2	4	1.9	3	1.6	1	1.5
Price (expensive)	42	51.9	72	33.3	98	53.3	35	51.5
Preferences	0	0	8	3.7	17	9.2	2	2.9
Other reasons	3	3.7	5	2.3	14	7.6	3	4.4
No reasons	3	3.7	1	0.5	10	5.4	3	4.4
TOTAL	81	100	216	100	184	100	68	100

As can be seen the high prices charged by mission health units and their greater distances from the homes of most people who had chosen government health units, traditional healers and self-care, appear to be the most important barriers to their utilization of private health units.

7.5.6 WHY GOVERNMENT HEALTH UNITS WERE NOT VISITED.

Table 7.6 indicates the reasons that were given for not consulting at any government health unit. Most of those who had chosen the mission hospitals (82.4%) said the reception of staff in government health units was poor while those who had chosen the mission health centres (75.0%) said the government health units were far from them. Most of those who had chosen traditional healers (44.1%) and those who had self-medicated (47.3%) said the government units were not chosen because they were expensive.

Table 7.6: REASONS WHY GOVERNMENT HEALTH UNITS HAD NOT BEEN CONSULTED BY THOSE WHO HAD CONSULTED OTHER PROVIDERS IN THE DISTRICT.

Those who used ====>	Private				Private (not modern/mission)			
	Hospitals		Health Centres		self-care		trad. Healers	
Reasons given	Freq	%	Freq	%	Freq	%	Freq	%
Accessibility (too far)	2	5.9	15	75.0	28	15.2	24	35.3
Services (poor reception & bad earlier experience)	28	82.4	5	25.0	20	10.9	7	10.3
Price (expensive)	1	2.9	0	0.0	87	47.3	30	44.1
Preferences	0	0.0	0	0.0	26	14.1	3	4.4
Other reasons	3	8.8	0	0.0	19	10.3	4	5.9
No reasons	0	0.0	0	0.0	4	2.2	0	0.0
TOTAL	34	100	20	100	184	100	68	100

Other reasons included lack of appropriate equipments (preferences) mentioned by 14.1% of those who had self-care and by only 4.4% of those treated by traditional healers. This fact was also stressed by participants who took part in the focus group discussions. They indicated their willingness to pay for health care through community financing only on conditions that the staffing and equipment situations were improved.

Implicitly, this means that the staffing and equipment situation at the government health units is below average and would not provide value for money for most people.

As can be seen from above, the price of services, the service quality and accessibility appear to be the main barriers to utilization of the government health units.

7.6 ACCESSIBILITY OF HEALTH SERVICES.

This section treats the health care providers according to their official classification and operational levels. No distinction is made between the private and public sectors except for the isolation of traditional healers from the private sector group. This is necessary because some people who work in the public and private sectors also provide traditional medicine to the population. More so, households with someone sick do not appear to make a distinction on the basis of who owns which health facility when they decide to seek health care.

7.6.1 HEALTH PROVIDER CHOICE IN RELATION TO DISTANCE.

In table 7.7, a comparison is made between the distances travelled by those who chose the health centres, the hospitals and traditional healers. The expected inverse correlation between accessibility of health services and their use was seen: as the distance to the health provider increased, their utilization decreased except for the hospitals where an increase in utilization occurred with increasing distance.

95.6% of the visits to traditional healers were accounted for by people who had travelled less than ten kilometres. 76.7% of the visits to the health centres are made by people who travel less than ten kilometres. This is in sharp contrast to the 19.1% of

visits made to the hospitals by those with the same travel distance of less than 10 kilometres. If 10 kilometres is taken as the radius of the catchment area of the health care providers, it is seen that just 4.4% of patients of traditional healers come from beyond their catchment area compared to 23% for the health centres and 81.9% for the hospitals. Most of the visits to the hospitals (58.3%) are made by people who travel thirty kilometres or more. The above findings are supported by the views of participants during the focus group discussions who indicated that traditional healers were their "next door neighbours".

TABLE 7.7: GEOGRAPHICAL ACCESSIBILITY TO HOUSEHOLDS OF TRADITIONAL HEALERS, HEALTH CENTRES AND HOSPITALS.

Provider ==>	Trad. Healer		Health centre		Hospital	
	Freq	%	Freq	%	Freq	%
0 - 9	65	95.6	181	76.7	22	19.1
10 - 19	1	1.5	18	7.6	5	4.3
20 - 29	1	1.5	29	12.3	21	18.3
> = 30	1	1.5	8	3.4	67	58.3
Total	68	100	236	100	115	100

7.6.2 HEALTH PROVIDER CHOICE IN RELATION TO TRAVEL AND WAITING TIMES

Concerning travel time, the results must be examined with caution since no control was made of the different modes of transportation used by the different patients; some travelled on foot while others used either a car, a motorbike or a bicycle. Table 7.8 presents the actual time travelled by those who had actually utilized the health care providers (columns 3 -5) as well as the answers to a hypothetical question (column 2). When people were asked a hypothetical question as to the time it would take them to get to the nearest health unit, on the average, 52.2% said they

were within less than an hour's walk while only 6.9% said they were three hours or more from a health unit (see column (2) in table 7.8 below). When it came to the actual time travelled to the various providers by those who had used them, differences were noted (See columns 2, 3 and 5 in table 7.8).

TABLE 7.8: PERCENTAGE DISTRIBUTION OF THOSE WHO CONSULTED HEALTH CARE PROVIDER BY THE TIME TAKEN TO THE HEALTH UNITS (in minutes).

Time in minutes (1)	Households (2)		Trad. healers (3)		Health centres (4)		Hospitals (5)	
	Freq	%	Freq	%	Freq	%	Freq	%
0 - 60	315	52.2	48	70.6	44	18.6	7	6.1
61- 119	191	31.7	15	22.1	76	32.3	21	18.3
120-179	55	9.1	2	2.9	59	25.0	45	39.1
180-239	20	3.3	3	4.4	44	18.6	25	21.7
>=240	22	3.6	0	0	13	5.5	17	14.8
TOTAL	603	100	68	100	236	100	115	100

It was seen that only 18.6% of those who visited the health centres had actually done it in less than one hour while 70.6% of those who visited the traditional healer had done their journeys in less than an hour's time. This is in sharp contrast to those who visited the hospitals, most of whom had actually done their journeys from between two and three hours (Table 7.8). Comparison between the actual time and that given in response to the hypothetical question is difficult because in the hypothetical case, households did not differentiate between traditional healers, health centres and hospitals. The general trend is that of an inverse relationship between travel time and utilization of health care providers.

In an attempt to estimate the accessibility of health care providers, the average travel and waiting times spent for seeking health care was measured. Table 7.9

provides the average travel and waiting times of those who sought health care from the different providers.

TABLE 7.9: AVERAGE TRAVEL AND CONSULTATION TIMES TO HEALTH CARE PROVIDERS IN THE DISTRICT (In Minutes).

Health care providers	Travel time to unit	Health unit time ⁽³⁷⁾	Total time in unit
Government health centre	57	26	140
Private Health centre	49	15	112
Government hospital	83	23	190
Private Hospital	162	21	345
Traditional Healer	23	16 ⁽³⁸⁾	62

The total time spent for treatment (travelling, waiting time, time in the laboratory and pharmacy) in the government health centres was on average 2 hours and 19 minutes while that for the mission health centres was 1 hour and 52 minutes. The treatment time in hospitals for outpatient treatment was considerably longer, 5 hours 45 minutes in mission hospitals and only 3 hours 10 minutes in government hospitals.

From the household interview survey, when it came to the time spent waiting in the unit to be treated (waiting time and time in propharmacy), the average wait varied between 15 minutes at the private health centre and 26 minutes at the government health centre. On the whole, the longest waits were indicated by those who had visited the government institutions, hospitals (23 minutes) and health centres (26 minutes).

³⁷ HEALTH UNIT TIME includes waiting time, time spent in the laboratory and in the pharmacy to buy drugs in the health units. (In other words, it is the time spent for Waiting and for treatment). The TOTAL TIME IN UNIT is an addition of the travel time multiplied by 2 to the HEALTH UNIT TIME.

³⁸ Unlike for the other providers, the traditional healer had no time kept aside for the provision of drugs as happened in the health centre and hospital pharmacies. The consultation and the delivery of drugs at traditional healing homes were all done at once and in most cases by the same person.

While the waiting time (health unit time in table above) was shorter for mission hospitals, the journey (Travel time to unit in the table above) took much longer (Table 7.9). This is probably because the mission hospitals were very far away from the area of this study. Furthermore, the mission hospitals are supposed to be self-financing and the more patients they see, the more money enters into their treasury. It is therefore possible that all the staff work conscientiously to treat as quickly as possible any patient that comes to their units.

7.6.3 EQUALITY OF ACCESS: DISTANCE TRAVELLED AND TREATMENT TIME (TRAVELLING AND WAITING) IN RELATION TO SOCIO-ECONOMIC LEVEL.

There are several things to be considered when discussing equality of access to health care. One of these things which appears to be important is the variation of cost to patients of different socio-economic levels, at different types of health service providers (See Chapter 6). In this section, consideration is given to the average distance and time travelled to public health centres as a function of socio-economic status of the patients.

It is seen that the wealthiest 25% compared to the poorest 25% of the respondents travel for a lesser distance to consult and spend less time in the health unit. Table 7.10 presents the average distance travelled and time taken for treatment by the different socio-economic groups.

TABLE 7.10: AVERAGE DISTANCE TRAVELLED AND TOTAL TIME SPENT BY SOCIO-ECONOMIC STATUS OF THOSE WHO REPORTED AN ILLNESS

Average distance and time	Poorest 25%	Lower middle 25%	Upper middle 25%	Wealthiest 25%
Distance	11.2 Km	6.80 Km	5.40 Km	6.10 Km
Total time in health centre (travel + waiting + treatment)	160 min	130 min	119 min	130 min

Those who belong to the wealthiest 25% of our sample spend less time with the health providers than those in the poorest 25%. The wealthiest spent on the average, two hours and ten minutes (2 hours 10 minutes) compared to two hours and forty minutes (2 hours 40 minutes) spent by the poorest. This difference in time of thirty minutes (30 minutes) between the 2 extreme socio-economic groups might be explained by the fact that those higher up on the social level, unlike their counterparts in lower groups, might be jumping the queue. It could also be because the opportunity cost of time is higher for the rich. Their opportunity cost of time would not be higher if they are in formal employment and continue to earn their salary even when they go to seek health care but this is not the case in the rural area of this study where most people are self-employed. The difference in all the time spent for treatment between the socio-economic groups is statistically significant ($F = 3.5785$, $P = 0.0148$).

As concerns distance, the wealthiest travelled an average of only six kilometres (6 kilometres) compared to the eleven (11) kilometres travelled by the poorest 25% of the population. This might be due to the fact that most of the wealthiest people stay in thickly populated areas where the health unit is most likely to be situated compared to the poorest who in most cases are far in the rural areas working on their farms. The difference in distance travelled by patients of different socio-economic groups is statistically significant ($F = 3.07$, $p = 0.268$).

7.7 SUMMARY.

This chapter has explored the relationship of health provider characteristics with the choices made by households with a sick individual. It was realised from the focus group discussions that the population was concerned with the health care delivery system as it is now. Among their concerns were the prices charged by some of the providers, the lack of staff, supplies and basic equipment and the uncaring attitudes of most of the health care personnel especially those working in public health establishments. Though most participants or their close relatives had recent experiences with the health care delivery system, it also transpired that most of them when ill self-medicated or waited for the symptoms to subside and only presented themselves in health units for "modern" health care when the illness persisted or became more serious.

The reasons given during the household interview survey for not seeking care from the different providers included the problems of accessibility (distance and time), high charges or prices, poor quality services, poor reception by government health staff, staffing and equipment shortages or inadequacies. Notwithstanding the socio-economic group, all those who effectively consulted the traditional healers, consulted at the private and public health centres had been attracted by the nearness of the units to their residences. Those who consulted in the private hospitals were attracted by the better quality of care though only the wealthiest group considered the quality of care when they consulted in public hospitals.

Those who were in the wealthiest quartile travelled a lesser distance to seek health care and spent less time in the health units than those in the poorest quartile. Waiting time was shorter in private hospitals and health centres but longer in government health centres and hospitals. The travel time was longer to hospitals and particularly to private hospitals but shortest for traditional healers. On the whole much more time was spent in reaching private hospitals than in government ones, while much more time was spent in government health centres than in the private ones. The traditional healers had the shortest treatment time of all the health care providers in the district.

CHAPTER 8

REGRESSION MODEL OF EXPENDITURE IN PUBLIC HEALTH CENTRES AND FACTORS AFFECTING THIS EXPENDITURE.

8.1 INTRODUCTION

In chapter 6, the variations noticed in the private expenditure made by community members were highlighted. However comparisons made had not been standardized by controlling for all other factors that might have affected the expenditure. This chapter tackles this problem by developing a multiple regression model (a continuous model) in which the dependent variable is total expenditure. Expenditure in this chapter was used as a proxy for use. The chapter begins with a presentation of the continuous demand model followed by that of the regression analyses results.

8.2 CONTINUOUS DEMAND MODEL.

This model is used to measure the amount of services consumed from a given type of provider, which in this study is the Government health centre. It is the relationship between a continuous choice variable (Total expenditure on treatment) and explanatory variables (Table 8.1). Total expenditure is taken to mean the total amount of money that has been spent in the government health centre and includes the cost of drugs, cost of transport, laboratory fees, service fees and any other payments made during a visit to the government health centre. The independent variables presented in Table 8.1 were carefully chosen based on the literature review and on the expectations of what is thought to influence expenditure.

TABLE 8.1: DESCRIPTION OF VARIABLES FOR THE CONTINUOUS DEMAND MODEL.

<u>NAME</u>	<u>DESCRIPTION</u>	<u>SPECIFICATION</u>
LNEXP	total hc cost (Total of transport cost, drug cost, service cost, laboratory fees, other payments made)	Total expenditure/cap A total of 7 government health centres are included in the regression
SIZE	Number of people in household	(hhsz >=6) = 1; else 0.
LNINCOM	household monthly income (Salaries, no salary wages, owner-occupied rents, pensions, and home productions consumed etc)	Monthly income/Cap
EDU	Educational Level of the sick (no education and primary are combined so too is Secondary and University level)	Edu (Second+) = 1, else = 0.
MSTATUS	Marital status of sick person	1 (married) else 0.
LNASSET	household wealth-assets	Monetary value of all assets /capita. household belongings and livestock in francs cfa)
TRAVEL	time travelled to health centre	Time in minutes.
CONSULT	consultation time in health centre	Time in minutes.
TIMWAIT	Waiting time in health unit	Time in minutes.
DISTANCE	Distance travelled to unit	In kilometres.
SEX	Sex of the patient	1 = Male, 2 = female
AGE	Age of the patient	In years.

Note: #1 Ln(X) Natural logarithms of the variable (X).

#2 Price has already been included int the expenditure variable and is consequently not considered here as a variable.

The descriptive statistics of all the variables included in the model appear in Table 8.2 below.

TABLE 8.2: DESCRIPTIVE STATISTICS OF VARIABLES.

	<u>Mean</u>	<u>S.Dev</u>	<u>Cases</u>	<u>Label</u>
LOGEXP	7.949	0.846	215	Nat. log of total expenditure (excludes time cost)
DISTANCE	7.295	11.14	215	Distance to health centre (in kilometres)
TRAVEL	57.07	45.45	215	Time travelled to health centre (in minutes)
CONSULT	14.52	10.04	215	Consultation time in health centre (in mins)
TIMEWAIT	63.74	40.94	215	Waiting time in minutes
MONEX	553.1	650.6	215	Monthly expend/cap. for other things than for health.
LOGASSET	10.91	1.057	215	Nat. log of total household assets per capita.
LOGINCOM	8.58	0.614	215	Nat. log of monthly income per capita.
AGE	45.20	15.29	215	Age in years
SEX	0.89	0.310	215	Sex (dummy, male = 1 else = 0)
EDU	0.10	0.298	215	Education (dummy, Secondary and above =1, else=0)
SIZE	0.38	0.487	215	Family size (dummy, more than 6 members = 1, else=0)
MSTATUS	0.81	0.390	215	Marital status (dummy, married = 1 else = 0)
HOUSE	0.20	0.068	215	House ownership (dummy, owns house = 1 else = 0)

The continuous demand model is estimated using multiple regression analysis (ordinary least square [OLS]) (Lewis-Beck, 1987). The factors which seem likely to explain the total health care expenditure in government health units in this district have been included in the regression. It is hypothesized from economic theory and from published literature that the demand for health care depends on income, price, quality of care, distance, travel time, cost, waiting and treatment time, education, wealth, and household size. We can indicate this symbolically as in equation (1)

$$Q_u = f_u (HU_u, S_u, + \sum u_u. (j= \text{public, private, traditional, self-care}).....(1)$$

$$(i = 1.....n)$$

Where:

Q_{ij} = Quantity of health care demanded from j provider by i individual, represented by the total health care expenditure.

HU_{ij} = Vector of health unit characteristics (cost, waiting and treatment time, price).

S_i = Vector of individual characteristics (income, education, age, sex, household size).

Σu_{ij} = Unobservable random variable which measures random behaviour, captures measurement errors and/or unobservable characteristics of individual characteristics and of health care source.

The relationship between the dependent and the independent variables is presumed to be one of constant elasticity which can be represented by

$$X = \beta_0 \beta_1 HU_{ij} \beta_2 S_i \Sigma u_{ij} + \Sigma \beta_i M_{ij} \dots \dots \dots (2) \text{ specified from (1) above.}$$

Where:

$\beta_0, \beta_1, \beta_2$ = Parameters measuring changes in expected net utility due to changes in the level of attractiveness.

M_{ij} = Vector of dummy variables.

Part of equation 2 is similar to the general form of the Cobb-Douglas function and the error term is multiplicative. The assumption of $\Sigma(u) = 0$ cannot be applied since the function will disappear.

To get over this problem, the equation is re-written as:

$$X = \beta_0 \beta_1 HU_{ij} \beta_2 S_i e_{ij} + \Sigma \beta_i M_{ij} \dots \dots \dots (3) \text{ (e is 2.718, base of natural logarithm).}$$

To linearize the above equation, a log-linear transformation of part of the equation 3 above (Maddala, 1981) is done by taking the logarithms of all the variables to the base "e".

$$\ln(X_{ij}) = \ln(\beta_0) + \beta_1 \ln(HU_{ij}) + \beta_2 \ln(S_i) + \Sigma(u)_{ij} + \Sigma \beta_i M_{ij} \dots \dots \dots (4).$$

This can be written taking

$$Y = \ln(X_0), B_0 = \ln(B_0), X_1 = \ln(HU_0), X_2 = \ln(S_{it})$$

as $Y = B_0 + X_1 + X_2 + \Sigma(u) + \Sigma B_i M_0 \dots \dots \dots (5).$

The logarithmic transformation is applied to each variable to reduce the bias of distribution. The above equation can then be estimated using Ordinary Least Square (OLS). The regression equation containing the dummy variables is fitted mechanically by "dropping out" (Suits, 1984; Over, 1991) one of the dummy variables for each variable set in the system. In this study, household size (Size) was treated as a dummy variable [6 or more household members = 1, else 0] as well as marital status (Mstatus) [married = 1, else 0] and educational level (edu) [educated to secondary school level and above = 1, else 0].

Other variables include those that characterise the health Service such as:

A) PRICE

According to economic theory, the price of goods is among the factors that influence how households allocate their incomes. Health care in most developing countries is provided free of any charge or at minimal charge at the point of delivery in an attempt to mitigate the effects of the function of the price system. The price for treatment is equivalent to the cash price for examinations and for obtaining drugs from the pharmacy.

In this study, the price of the service is assumed to be the cost paid by the patient. However it is not included in the modelling since the dependent variable is expenditure which includes the price. One other component of the price paid is time which is included in the modelling. Though the cash price which is already in the dependent variable, expenditure, is not again included as an independent variable in the regression model, it will be discussed below together with the time cost.

i) CASH PRICE

This is the direct charges to patients for consultation and treatment. It is hypothesized that the decision of which health care provider to use is related to the prices charged by other providers. Other things being equal, actual cash price paid for using a health care provider should act as a deterrent to use.

In some areas, any health care provider who provides free services is seen as one with low quality care. In such cultures, health is seen as valuable when a price tag is attached. For example, people in Ivory coast said they were better cared for if they paid (Lasker 1981), hence Lasker wrote " many people expressed a desire to pay for medical care, claiming that payment would insure that they receive good care". People put more value on drugs they pay for from mission and private hospitals than those received free from government health units (World Health Organisation, 1988). Payment methods may also affect choice of provider and use. "Modern" health care providers require that patients pay in cash and at once whereas traditional healers are flexible and accept payments in kind at the beginning of the treatment and even after cure. Even if the traditional healer is more expensive, people might prefer them because of their flexible payment methods.

ii) TRAVEL TIME AND TRANSPORT COST

The cash price for transportation is usually a small part of the real cost of transportation because most trips in rural areas are done by foot, bicycle or motorcycle. It is hypothesized that travel cost made up of the cash price and time cost act as a deterrent to the use of health providers. When alternative sources of care are available, the transportation cost acts as an allocative device influencing which provider is chosen. When the cash price at the point of delivery is free as is the case in most public health units in less developed countries, travel time cost and transport cost become prominent deterrents.

iii) WAITING AND CONSULTATION TIME

As with the travel time, waiting time is a time price that has to be paid. There is also an opportunity cost in waiting for services from any health care provider. Waiting times might be quite long in some health facilities. The actual cost is not the time spent waiting but the value of time lost from other activities to be able to seek care. Its influence on the use of health care will vary depending on whether the patient is an adult or a child, employed or unemployed. A child can afford to wait for hours without any economic cost but an adult might lose wages. People who have a low opportunity cost of time would have no problems waiting for long hours for free care whereas those with high opportunity cost would not want to wait for long and would prefer to pay if only not to wait. Like money prices, it is expected that demand will fall as waiting time rises.

The time for laboratory examination, consultation and obtaining a prescription signals the beginning of another wait. It is hypothesized that patients prefer longer consultation times because it is hoped that the longer one stays with the health care provider, the better one's complaints are listened to and consequently better treatment will be provided. This goes the same for waiting time which is taken by some people to represent a quality indicator.

B) DISTANCE

It is usually hypothesized that distance acts as a deterrent to the use and choice of health care providers. As the perceived distance to a health care provider increases, the expected net benefit decreases, hence a decrease in the probability of choice and consequently the use of health care declines.

As far back as two decades, Acton (1975) indicated that distance served as a measure of physical distance, time and money costs of travel. He went further to indicate that the farther away from a health facility one is, the more costly is the information,

thereby reducing access by limiting one's awareness of the availability of health care services.

Where transportation facilities are not good, the transport cost and distance to health providers might not be linearly related. Transport cost and travel time will only correspond in situations where everyone uses exactly the same mode of transportation.

Household and individual variables include the following:

i) INCOME AND SOCIO-ECONOMIC LEVEL

Economic theory indicates that any rise in income will cause an increase in the consumption of goods including health care. Income, especially that earned, affects the value of time and the demand for health care. When households become richer, they are able to buy more health care, but they may choose to buy inputs to improve their health status. This may lead to a drop in the use of health care providers. It might also happen that an increase in income results in the adoption of unhealthy life styles which will increase health care need in the long term.

Low income may result in less care being demanded leading to a low health status. Having a low health status makes it less likely to have or keep a job, other things being equal. This is because of the many work-loss days. In the final analysis, the person with a poor health status is likely to earn far less when he is able to work and is likely to have a low income. This ends up being a vicious circle. There is evidence from literature (Gertler *et al.*, 1987) that low income groups are more sensitive to variation of levels of fees charges for health care.

In the analysis, regression of all the variables was done against household income and household income per capita. The R^2 were better when the per capita income was used than when it was the total income. Per capita income is a better measure of individual consumption than total income though total household income might be pooled

together to withstand high expenditures due to illness. Households with higher incomes will be able to shift from free health care in public health units to paid care in private units.

Higher socio-economic level is associated with a higher income. People in the high socio-economic level will, with respect to the demand for health care services, behave like those who have high incomes. In this respect, a higher socio-economic level is associated with a much higher effort to seek health care services.

ii) WEALTH (ASSETS)

Household assets are an indicator of wealth. Over a lifetime, households accumulate their assets which are in the form of bank deposits, land, animals and other possessions. These increase their abilities to use health care and they can afford higher quality health care. This is possible because money can easily be raised in the form of a loan from either friends or relatives against the assets as guarantees. Some of the assets can be sold and some are directly productive e.g. land and a vehicle. With the above possibilities, availability of assets imply a better chance of being able to pay for health care. Regressing household income with wealth proxies, it is noticed that wealth is correlated with household income. However, it is not impossible to see an elderly household with much wealth but little or no earning capacity. It is hypothesized that wealth has a positive relationship with the demand for health care.

iii) HOUSEHOLD SIZE

It is hypothesized that household size has a direct effect on health which is in part an issue of income. Large households have a predisposition to use health care services because the incidence of infectious diseases is positively related to household size (Fiedler, 1983). A large household has a higher chance of getting an infectious disease due to the increased close physical contacts resulting from overcrowding. This situation is seen

in rural areas where many people sleep in one house. In such situations, we will expect a larger household to have a greater incidence of illness and consequently a greater level of utilization of health services. The demand for health care services is positively related to household size.

On the other hand, in a larger household, resources have to be shared with more people which can result in less use of health care per person and even lower levels of nutrition for each household member. One can also view this from another angle. Having many people in a household, the potential to get incomes from diversified sources is greater but the capacity for additional costs due to more dependents makes the effects of household size on health care demand less clear. If the income effect is predominant, the larger households are expected to behave with respect to health care demand as if they have higher incomes than those that are measured for them.

In large households with many children, there are many demands on the time of the household members. The opportunity cost of time may become high and people may opt to forego health care services (Fiedler, 1983). However the opportunity cost of time might also be low because there might be specialisation of duties. In situations where there is high unemployment, the reverse might happen in which case it is expected that the access and utilization of health care services by such households will be more than that for smaller ones.

iv) EDUCATION

Education is seen here as a proxy for relative efficiency of different people in combining inputs to create added healthy days (Education allows more outputs to be produced from a given set of inputs). Education correlates with income, wealth, social class and age. Education has both direct and indirect effects on health (Leigh, 1983). Grossman, (1975) quoted by Leigh, (1983) had earlier discussed the indirect effects of

education on health. Directly, education allows wise use of health care services since those with higher education know more about the availability of health services and their benefits. Highly educated households might perceive benefits from health care to be higher resulting in their having to demand more. In Jordan, Abbas and Walker, (1986) found that the use of antenatal services was significantly associated with women's education. They may also be more capable of substituting other forms of health care, eg self-care, for visits to health units or traditional healers. Education and demand for health care services is thought to be positively related though it is difficult to disentangle the effects of education from those of the related variables like income, wealth, assets and social class.

v) SEX

Women tend to live longer than men and in their middle years, they tend to be less healthier than men thereby reporting more illness episodes. As the women get older, they use health facilities more than the males (fewer men of the same age are still alive). It is difficult to generalise about the effect of sex on demand especially when age, health status and marital status are also taken into consideration.

vi) AGE

Theoretically, there should be a U-shaped relationship between health care use and demand (Akin *et al.*, 1985). In the early years of life, the immunological system is not yet fully matured hence a predisposition to diseases. The need for health care falls until chronic diseases set in.

Age is used here as a proxy for the depreciation rate of the stock of health hence as age advances, the stock of health starts depreciating, increasing the incidence of illness thereby requiring more health care. The demand for more health care results from the negative relationship between the stock of health and age. People therefore attempt to

counter the effects of the depreciation of their health stock by increasing their use of health care.

8.3 ORDINARY LEAST SQUARE (OLS) RESULTS

8.3.1 THE CORRELATION MATRIX.

The Correlation matrix for the dependent and independent variables is presented in Appendix 8.1. The regression equations were estimated using only the data of those adults 15 years and above who had reported an illness and had used the public health centres only. The variables put into the model were those that were found to be significant with the expenditure variable (LogExp) (appendix 8.1) and those that were theoretically relevant considering the literature review and the possibility of policy actions. Furthermore the assumptions for multiple regression warrant the log-transformation (to get nearer a normal distribution). Log-transformation was also necessary for those variables that had large ranges.

8.3.2 THE ESTIMATION OF THE CONTINUOUS DEMAND MODEL.

The Continuous Model was estimated using the stepwise technique which included forward and backward selections to assess the effects of the different independent variables on the dependent one. Since the exact formulation of the model was not known before hand, this technique provided a way of estimating the coefficients and the partial regressions of the variables that significantly contributed to the explanation of the model while eliminating those found not to contribute significantly.

The coefficients give an estimate of the effects of a unit change of any of the independent variables on the probability of spending in a public health centre. A negative

coefficient indicates that an increase in the variable will result in the decrease in the expenditure probability while a positive coefficient indicates an increase in the probability.

Tables 8.3, 8.4 and 8.5 present the results of the multiple regression analyses of the whole sample, of the poor and of the rich respectively. Appendix 8.2 present those variables that were excluded from the equation since they were not significant. Using the socio-economic quartiles, the poorest 25% (lowest level) and the Lower middle 25% were combined to form the group of the poor while those who were in the upper middle 25% and the wealthiest 25% (highest level) constituted the group of the rich.

TABLE 8.3: CORRELATION COEFFICIENTS AND RESULTS OF MULTIPLE REGRESSION ANALYSES OF EXPENDITURE IN PUBLIC HEALTH CENTRES (N = 215; DEPENDENT VARIABLE = LnEXP).

Variable s	Corr. coeff	Step 1	Step 2	Step 3	Step 4	Step 5	T-ratio	Signi f	Tolerance
		Reg coeff	Reg coeff	Reg coeff	Reg coeff	Reg coeff			
Const		4.794	5.9209	5.9708	4.9771	5.0111	5.530	.000	
LnInco	0.267	0.367	0.4338	0.4784	0.5427	0.5507	5.9480	.000	0.8538
lnAsset	0.116		0.1554	0.2062	0.1774	0.2023	3.623	.004	0.7912
Distance	0.128			0.0166	0.0179	0.0149	2.889	.004	0.8337
Size	0.094				0.3102	0.3263	2.785	.006	0.8469
Time wait	0.109					0.0029	2.055	.041	0.8241
R ²		0.071	0.1065	0.1508	0.1779	0.1942			
R ² adjus		0.067	0.0981	0.1387	0.1623	0.1749			
F		16.32	12.6453	12.4923	11.3658	10.0772			

T: p<0.05 if t>1.96; p<0.01 if t>2.576; p<0.001 if t> 3.29

TABLE 8.4: CORRELATION COEFFICIENTS AND RESULTS OF MULTIPLE REGRESSION ANALYSES OF EXPENDITURE IN PUBLIC HEALTH CENTRES BY THE POOR (N = 104; DEPENDENT VARIABLE = LnEXP).

Variables	Corr coeff	Step 1	Step 2	T-ratio	Signi	Tolera nce
		Reg coeff	Reg coeff			
Constant		8.2704	8.0824	35.254	0.0000	
Sex	-0.234	-0.5615	-0.6596	-2.863	0.0051	0.9592
Time wait	0.148		0.0039	2.111	0.037	0.9592
R ²		0.0549	0.0945			
R ² adjusted		0.0457	0.0767			
F		5.9886	5.3332			

TABLE 8.5: CORRELATION COEFFICIENTS AND RESULTS OF MULTIPLE REGRESSION ANALYSES OF EXPENDITURE IN PUBLIC HEALTH CENTRES BY THE RICH (N = 111; DEPENDENT VARIABLE = LnEXP).

Variables	Corr coeff	Step 1	Step 2	Step 3	Step 4	T-ratio	Signif	Tolera nce
		Reg coeff	Reg coeff	Reg coeff	Reg coeff			
Constant		8.0111	4.888	6.3011	4.5186	2.842	.0054	
Distance	0.237	0.0171	0.0172	0.0209	0.0224	3.464	.0008	0.9466
LnIncom	0.219		0.3524	0.4407	0.6020	3.695	.0004	0.7352
LnAsset	0.144			0.2047	0.1906	2.625	.0100	0.9083
Size	0.039				0.3648	2.072	.0407	0.7346
R ²		0.056	0.1048	0.1660	0.1987			
R ² adjust		0.0475	0.08808	0.1424	0.1682			
F		6.4354	6.2638	7.0332	6.5119			

T: $p < 0.05$ if $t > 1.96$; $p < 0.01$ if $t > 2.576$; $p < 0.001$ if $t > 3.29$

In the regression, the coefficients on all variables other than income (LnIncom) and assets (Lnasset) can be interpreted as the percentage change in health care expenditure corresponding to a change in the situation of the corresponding variable, holding the other

variables constant. The coefficients on the Income (LnIncom) and Asset (LnAsset) variables represent elasticities.

As the independent variables were being included in the equation, the influence of the distance variable appeared most powerful. This was indicated by an increase in the coefficient of determination (otherwise also known as the explained variance) from 9.8% to 13.9% for the whole sample. The inclusion of the income (LnIncom) variable and all other variables caused increases of between 1 and 3%. At the end, when all the variables were included, the explained variance increased from 6.6 to 17.9% for the whole sample, from 4.6 to 7.7% for the poor and from 4.8 to 16.8% for the rich.

In the model presented the income variables represents the total monthly income per capita though not a very good indicator of income level since it does not consider the expenditure made. (There was however no significant difference in the regression coefficients when the income variable represented the monthly disposable income per capita (total monthly income - expenditure)). The Standardized residuals were plotted against the predicted values given by the equation and it was found that the model fitted the data well (See figure 8.1 below).

From the Models estimated, 17.9% (adjusted R^2) of the variation of the dependent variable is explained by the independent variables. It is possible that the remaining percentage can be accounted for by a combination of random factors, inaccuracies of the data used for the estimation, and misspecification of the hypothesized structural form.

The effects of all the variables are significant at the 5% level (Timewait), at the 1% level (Distance, size) and at the 0.1% level (LnAsset, LnIncom). All the F-values were highly significant. This results in the rejection of the hypothesis that the underlying population coefficients are all simultaneously zero.

8.4 RELATIONSHIP BETWEEN INDIVIDUAL, HOUSEHOLD AND HEALTH SERVICE FACTORS AND EXPENDITURE IN PUBLIC HEALTH CENTRES.

A priori expectations for most of the variables were confirmed. In this health district, the demand for health care as proxied by expenditure is sensitive to the distance, waiting time, household income per capita, wealth and household size. When the sample was disaggregated into the poor and the rich, it was seen that sex and waiting time influenced the expenditure of the poor while that of the rich was influenced more by distance, household income per capita, wealth and household size.

8.4.1 RELATIONSHIP BETWEEN HOUSEHOLD MONTHLY INCOME, WEALTH (ASSETS) AND EXPENDITURE (USE HEALTH CARE).

The sign of the estimated regression coefficient for household income was as expected. The income variable bears a positive sign. Since the income elasticity is more than zero but less than one, the demand is income inelastic and the commodity, health care, is not a luxury but a necessity. The income elasticity is positive meaning that health care is a "normal" good. The income elasticity estimate is very small ranging from 0.602 for the rich to 0.551 for the whole sample. A 1% increase of household income for the rich will increase expenditure by only 0.6% and 0.55% for the whole studied population.

The more income or assets one has, the greater the probability of spending more money at the health centre. High correlation between income, per capita income and health care expenditure shows that people consume an amount of medical care that is influenced by their level of income. This means that there are inequalities in the amount of public health centre care utilized by adults with respect to household monthly income in this district.

As for wealth, the elasticity of demand is 0.0202. This means that when wealth increases by 1%, the total amount spent per capita in the health centre will increase by 0.02 %. However it is possible for someone in this area to be wealthy (having livestock, assets) but is unable to seek care for lack of cash.

8.4.2 RELATIONSHIP BETWEEN WAITING TIME IN HEALTH CENTRES AND EXPENDITURE (THE USE OF HEALTH CARE).

The waiting time (Timewait) in the health centre took a positive sign. The positive sign indicates higher expenditure associated with more time waiting to be consulted or for drugs. People would prefer public health centres where the staff pay much attention to the patients, than one in which the staff rush over complaints of patients. This is probably related more to the quality of care than to time itself. It is possible that the respondents regarded a long waiting time as representing good quality. This is supported by evidence from the focus group discussions where emphasis was placed by participants on the difference in the way staff handle patients in public health units and in private mission hospitals to which most of them preferred to go. During the discussions one rural female participant indicated from her experience that "patients are handled like eggs [in mission health units] unlike in government hospitals". Literally translated, this means that the staff in the private mission health units spend much more time with the patients examining them than those in the public health units. This view point was supported by most of the participants in the different discussion groups.

8.4.3 RELATIONSHIP BETWEEN HOUSEHOLD SIZE, SEX AND EXPENDITURE (THE USE OF HEALTH CARE).

When the household size variable (Size) is made a dummy one, having 1 for households with 6 or more members and zero for those with less than 6 members, the variable took a positive sign as expected. The effect of being in a household with more than 6 members relative to one with less than 6 inhabitants is to increase the health care expenditure (i.e health care the household will seek). Compared to a household with few members, a household with many more members will seek more health care. When the household size was regressed against household income per capita, the coefficient was negative which gives support to the point that a household with few members behaves as someone with low income.

It is only when the sample is disaggregated into the poor and rich groups does the relationship between sex and expenditure become noticeable. Men tend to spend less in the health centres compared to women. This probably indicates that women tend to use the health centres more than men. As women get older, they use health facilities more than the males. It is difficult to generalise about the effect of sex on demand especially when age, health status and marital status are also taken into consideration.

8.4.4 RELATIONSHIP BETWEEN TRAVELLED DISTANCE AND EXPENDITURE (THE USE OF HEALTH CARE).

The coefficient of the travelled distance (distance) took a positive sign. The positive sign is explained by the fact that people might have preferred one or another of the public health centres at a distance or they tended to be dissatisfied with those that were near to them. Furthermore, the time during which the study was carried out was a farming period which means that people did not see others very often so people might

have used these illness occasions to go far to be able to socialize with others as well as see relatives staying far from home. Furthermore, they might also have combined the visits to the health centres with other activities like going to the market to sell or buy things. These hypotheses were however not tested in this study. Since there was no control for the severity of illness, this positivity might be related to severity of illnesses.

As a conclusion, the above indicates that for the sample as a whole, a large family with high income appears to be strong positive influences of expenditure in public health centres. When the sample is disaggregated into the poor and the rich, the factors that influenced their expenditure are very different probably reflecting their different value systems.

8.5 CHARACTERISTICS OF THE CONTINUOUS DEMAND MODEL.

Before discussing further the characteristics of the estimated model in detail, it is necessary to discuss the meaning of the coefficient of determination R^2 in multiple regression which indicates the goodness-of-fit of the model. There are many weaknesses with the coefficient which include the fact that it is unpredictable (since it can be increased simply by maximizing the number of independent variables) and it can be higher or lower than the same figure computed for a regression with a constant included. A higher coefficient can be got simply by choosing whether or not to include the constant but estimating a model without the constant amounts to imposing a linear restriction where the constant is zero. A correction taking into consideration the degrees of freedom was proposed by Theil (1961). When corrected for the degrees of freedom they are called adjusted R^2 . Nevertheless, the coefficient can easily be manipulated to get a high value though at the expense of the precision of the parameters estimated. Some econometricians

(Gujarati, 1988) have even suggested that the importance so far attached to the coefficient should be down played though others have stressed the importance of this coefficient under certain conditions (Achen, 1982). For example, Granger and Newbold (1976) have indicated that the true model from a set of alternative ones is the one which has the highest population coefficient. Studies have however been reported with smaller R^2 values. For example, Zadoroznyj and Svarstad (1990) using OLS to study the extent of drug use in Wisconsin, America found R^2 for prescription drugs to be 17% (adjusted 15.7%) and for 'over the counter' drugs to be 13.8% (adjusted 12.5%).

To be able to draw any inferences about the whole population of the district based on the results of the sample, the model needs to be tested for certain characteristics among which are:

1) Multicollinearity

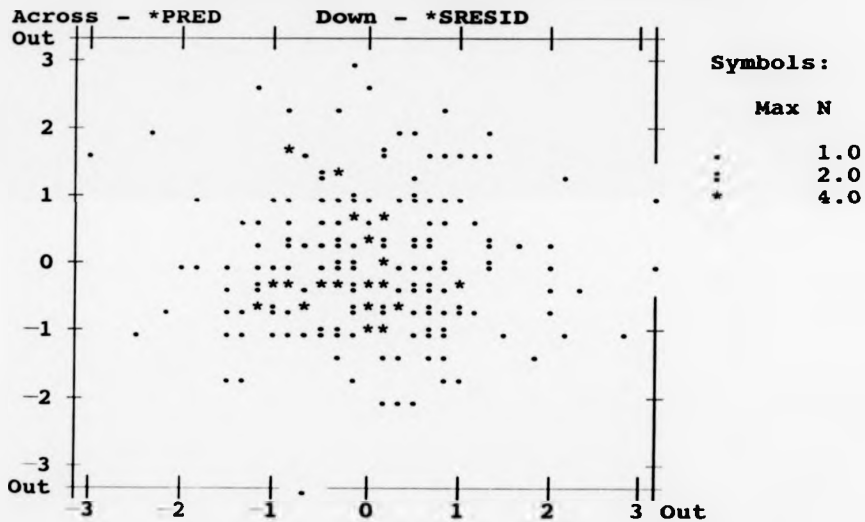
Multicollinearity, if it exists will result in increase of the standard error of the regression coefficients. Whether multicollinearity was present or not was examined by using a Tolerance test which expresses the proportion of the variability in an independent variable not explained by other variables in the equation. The test is expressed as $1 - R^2$ (where R^2 is the squared multiple correlation when the n^{th} independent variable is defined as a dependent one). Looking at table 8.3, it is seen that R^2 was low for all the variables. This indicates that there is no multicollinearity.

With the correlation matrix, the same solution is arrived at as by the tolerance test. It was seen that the correlation between the variables ranged were not more than 0.8. No intercorrelations between the independent variables is noticed (Appendix 8.1).

2) Homogeneity of Variance.

If the predicted values (x-axis) are plotted against the studentized residuals (y-axis), the residuals are seen to be randomly distributed in a band about a horizontal straight line through 0 indicating that there is no relationship between the predicted and the studentized residuals. Since there is no increase or decrease of residuals with increasing values of predicted values, the assumption of equality of variance appears not to be violated (Figure 8.1).

FIGURE 8.1: STANDARDIZED SCATTERPLOT OF RESIDUALS



From the analysis of variance, $F = 10.0772$ ($p < 0.0005$) in table 8.3, the hypothesis that there is no linear relationship between the dependent and independent variables is rejected.

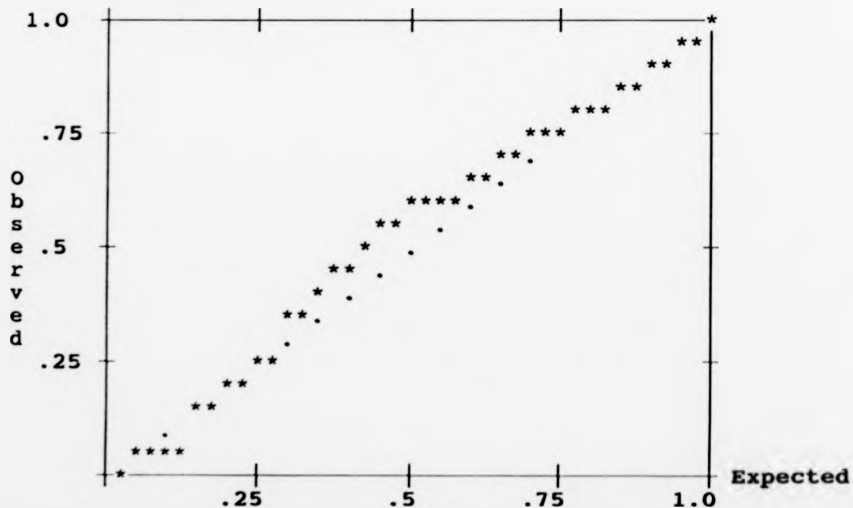
3) Linearity.

There is a normal distribution of total health centre expenditure for the independent variables with different means but same variance. The residuals are normally distributed - the cases are almost near the diagonal. This is evidenced by plotting the cumulative probability plot of the expected (on the horizontal axis) and observed residuals (on the vertical axis) against each other.

Plotting the cumulative percentage of the observed and predicted residuals (ZRESID), it is seen that at the beginning, the observed residuals coincide with the diagonal line through zero. As the concentration of residuals increases and once the greatest concentration is arrived at, the observed points represented by the stars are slightly above the diagonal line represented by the dots (Figure 8.2). On the whole, the cases almost fall on the diagonal as they do, indicating a linear relationship.

FIGURE 8.2: NORMAL PROBABILITY (P-P) PLOT OF RESIDUALS

Standardized Residual



4) Normality.

The distribution of the residuals, as indicated in the histogram appear to be normal. The periods and colon on th histogram represent what a normal distribution with the same mean and variance is supposed to look like.

FIGURE 8.3 HISTOGRAM OF STANDARDIZED RESIDUALS

N	Exp	N		(* = 1 Cases, . : = Normal Curve)
1	.17		Out	*
2	.33	3.00		**
1	.84	2.67		:
4	1.92	2.33		*; **
1	3.92	2.00		*
4	7.19	1.67		****
8	11.80	1.33		*****
14	17.34	1.00		*****
22	22.83	.67		*****
32	26.93	.33		*****
34	28.46	.00		*****
31	26.93	-.33		*****
17	22.83	-.67		*****
16	17.34	-1.00		*****
17	11.80	-1.33		*****
8	7.19	-1.67		*****
1	3.92	-2.00		*
2	1.92	-2.33		*;
0	.84	-2.67		.
0	.33	-3.00		
0	.17		Out	

8.6 SUMMARY.

In this chapter, the factors that influence expenditure (utilization) in public health centres in a health district have been explored. The utilization is in part, although not entirely, determined by socio-economic factors. Those with higher incomes and large families, tend to have higher health centre expenditures (utilization).

The medical expenditure per capita tends to rise with increasing income. Important differences in the factors that affect the choice of provider have been seen between the poor and the rich.

CHAPTER 9
MULTINOMIAL LOGIT MODEL
OF THE CHOICE OF HEALTH CARE PROVIDERS.

9.1 INTRODUCTION.

This chapter determines the predictors of the choice of health care providers in a health district. The predictors of the choice of health care provider was done using a multinomial logit model. The chapter examines first the role of choice in the health care market and continues with modelling the choice of health care providers. The potential impact of introducing community financing in government health centres with and without an improvement of accessibility is simulated.

9.2 THE ROLE OF CHOICE IN THE HEALTH CARE MARKET: CONSUMER CHOICE MODEL

In the health district, households are faced with a choice between a number of alternatives of health care providers. They are in a position to make a choice of the health care provider from whom they can seek health care in case of an illness. They go through a complicated decision-making process (Mwabu, 1986) aiming at maximising utility. This can be modelled taking into consideration the theory of behaviour which describes how humans behave and not how they should behave.

The health care delivery system in this district is heterogeneous. Households can make a choice between traditional healers, government and mission hospitals and health centres, as well as self-care. The above choices are easily available to everyone in the

health district especially as the district has been divided up into health areas served by different health centres.

Goods, commodities or services like health care are consumed by individuals or households because they yield utility to them. Utility here refers to the satisfaction a household gets from consuming health care. It is assumed that a household member will go to a unit from which (s)he expects a benefit, i.e. aim at maximizing utility (expected benefit - total cost is positive). Patients derive different levels of utility and it is here assumed that a patient will select the choice option with the highest utility with constraints of things like finance, time and distance at the time of making the choice. Households which consume health care are believed to get welfare from the characteristics of the services rather than from the consumption process as for other consumer goods. The welfare level (household utility) is seen to be a function of the characteristics of the household, the individual and the health services, and other non-medical factors (Mwabu *et al.* 1986). A patient who decides to seek health care makes a choice considering the characteristics of all the options. It is assumed such a patient has a constant preference structure based on the utilities of the choices available to him.

For any choice of health care provider to be made by the household, knowledge of all available services is needed. For example, if a patient had knowledge of the benefits to be got from the providers, it is assumed that his choice would be made in a different way from that which is made without the knowledge, all other things being equal. This is not the case and even if a patient were to have information about all the available services and behave rationally, the patient's behaviour cannot be the same at each time a decision is made. This is attributed to what is termed "disturbances".

In arriving at the choice of any of the providers, both the patient/household and provider characteristics must be considered. Though patients are known to adjust their

satisfaction levels faced with constraints such as time, finance to name just a few, it is not clear if they perceive their preferences.

Choice theory makes many assumptions. One of them is that the consumer demand results from utility maximization by a representative consumer whose decision is continuous. This is not the case with provider choice, hence a discrete choice model, a modification of the continuous modelling, is preferred here. One important thing connected with the application of the discrete choice model is the fact that real choices which must be fully perceived by those seeking care must exist. The alternative choices must also have some differences.

9.3 THE MODELLING OF CHOICE OF HEALTH CARE PROVIDER (DEMAND).

9.3.1 APPROACHES TO MODELLING OF THE CHOICE OF HEALTH CARE PROVIDER.

The modelling of the behaviour of patients seeking health care faced with a multitude of health care providers can be done using two main approaches: the constraint-orientated and choice-preference approaches (Desmond, 1991). The constraint-orientated approach models the number of visits made by a patient while the choice-preference orientated approach takes into consideration the choices available to the patient and attempts to model behaviour taking cognizance of the attributes of the choices.

This study makes use of the choice-preference orientated approach. Unlike the constraint-orientated approach, one is at ease with one visit when the choice-preference approach is used for modelling provider choice. In order to model the health provider choice-decision between the six types of health care providers in the district under study,

a multinomial logit model procedure is used. This model is that which is designed to model differences between three or more options.

9.3.2 SELECTION OF THE APPROPRIATE MODEL.

There are many discrete choice models that exist and many have been applied to different economic problems (Amemiya, 1981; Maddala, 1983; McFadden, 1981). One of the best of them is the Multinomial logit model (MNL). It is simple, easily estimated and interpreted. It provides cross-elasticities and the software computer package programs are readily available. Though one of the best, it has a problem which is the well known property of Independence of Irrelevant Alternatives (IIA) - it is assumed that the utility of a choice option is independent of the attributes of other alternatives of the choice set. This has led to the development of other models like the probit model which is free of this problem but is conceptually and computationally complex especially in the presence of more than three alternatives (Maddala, 1983; McFadden, 1981; Hausman and Wise, 1978).

The Nested Multinomial Logit model (NMNL) is a generalisation of the basic MNL model (Hensher 1986). The NMNL like the probit model is free from the IIA property and it is good for multidimensional choice sets. In this study, the behaviour of the patients surveyed did not permit us to consider the choice set a multidimensional one especially as the referral system was non-existent. It is assumed here that the alternative options provide distinct choices, have different attributes and can be considered to be mutually exclusive. The multinomial logit model is therefore preferred especially as there was no difference between the results obtained from a nested multinomial logit model (see appendix 9.2) and those from a multinomial logit model.

9.3.3 MULTINOMIAL LOGIT MODEL (MNL) - DISCRETE CHOICE DEMAND MODEL.

The Multinomial logit model has been used for many economic applications (Manski and McFadden, 1981). Households and individuals consume health services because they know they {health services} yield utility to them. Each household will therefore choose the source of health care that offers the highest net expected utility. Households who choose different providers value the provider's characteristics in a different way. This choice depends on the household characteristics as well as on individual's social, demographic, cultural and economic characteristics. The utility of any alternative is made subject to random errors whose distribution across individuals and alternatives are assumed to be Independently and Identically Distributed (IID).

Patients in the district are assumed to be a heterogeneous population, making stratification a necessity since a heterogeneous influence is believed to influence the process modelled. The patient population is divided into mutually exclusive groups based on their health areas. The characteristics of the different groups are ascertained because all individuals do not share the same options nor face the same constraints.

Logit models will predict the probability of choice of each alternative using the logit formula below. For example, Patient i can be seen as having to make a choice between a set of providers. The probability (prob) that patient (i) will choose provider (j) rather than provider (k) can then be expressed as:

$$P_j = \text{Prob} (V_j + \Sigma_{ij} \geq V_k + \Sigma_{ik}) \dots \dots \dots (1)$$

$$= \frac{\text{Exp} (V_j)}{\text{Exp} (V_j) + \text{Exp} (V_k)} \dots \dots \dots (2)$$

Σ_j and Σ_k are random utility of patients for providers "j" and "k" respectively. " V_j " and " V_k " are vectors of characteristics of provider "j" and "k" - Utility of each alternative in the choice set.

On the assumption that " V_j " and " V_k " are linear in their parameters, the probability (prob) can be written as:

$$P_j = \frac{\text{Exp} (\beta' V_j + \beta_j' R_i)}{\text{Exp} (\beta' V_j + \beta_j' R_i) + \text{Exp} (\beta' V_k + \beta' C R_i)} \dots\dots\dots(3)$$

" R_i " is the attributes of patient i. C is a constant, while β, β_1, \dots are vectors of parameters to be estimated.

Taking logarithms of the above equation results in:

$$\text{Ln} \frac{P_j}{P_k} = \beta' (V_j - V_k) + (\beta_j - \beta C)' R_i \dots\dots(4)$$

If the constraint that parameters of arbitrary base equal zero without loss of generality and the subscript on β_j is dropped then

$$\text{Ln} \frac{P_j}{P_k} = \beta' (V_j - V_k) + C R_i \dots\dots(5)$$

The assumption made above is that patients' evaluation of the alternative choices of health care providers can be described by utility functions. The health care provider with the highest utility is chosen. The probability that an alternative is chosen can be interpreted as the demand function in a discrete choice model.

Applied to the cross-sectional data of the household interview survey, it is thought that the utility maximization process can be such that each household gets information about the different health care providers and selects one and rejects the others. The attributes of the health care providers will enter the decision-making process.

Suppose that in our health district, a vector of N services is proposed as $X = (X_1, X_2, \dots, X_n)$ and their respective prices are $P = P_1, P_2, \dots, P_n$ and household income is Y.

We assume that households will choose the service they think will give them maximum utility - U - for N-services when prices are paid and income is Y. This can be written symbolically as:

$$\text{Max } U = U (X_1, X_2, \dots, X_n), \dots\dots\dots(6)$$

subject to income constraint

$$Y \geq \sum_{i=1}^n P_i X_i \dots\dots\dots(7)$$

The amount of revenue spent on services cannot exceed the total revenue coming into the household (income).

Assuming that households behave in a logical way; substituting cheaper services for more expensive ones; a set of demand equations can be derived for the relevant services assuming that the choice of services to be consumed depend on individual socio-economic characteristics [income (Y)] and health service provider characteristics (price (P), quality of care (Q), distance, Travel time, waiting and treatment time).

$$X_1 = X_1 (Y, Q^1, \dots, Q^n, P_1, P_2, \dots, P_n, Z^1)$$

$$X_2 = X_2 (Y, Q^1, \dots, Q^n, P_1, P_2, \dots, P_n, Z^1) \dots\dots\dots(8)$$

$$X_n = X_n (Y, Q^1, \dots, Q^n, P_1, P_2, \dots, P_n, Z^1)$$

where X_n = Optimal quantity of nth service consumed;

Z^1 = Vector of time (travel, waiting, treatment).

The above equations can generally be expressed as:

$$U_n = f_n (HU_n, Sc_n + \Sigma_n \dots\dots(9)$$

Where: [j= public, private, tradi, self-care] and (i = 1.....n)

U_{ij} = Benefit expected by patient i from health provider j.

HU_{ij} = attributes patient i confronts in health provider j

Sc_i = ith patient's socio-economic characteristics.

Σ_{ij} = Unobservable random variable.

If an additive utility function is assumed for the options, then

$$U_1 = B_0 + B_1B_1 + B_2C_1$$

$$U_2 = B_0 + B_2B_2 + B_3C_2.....(10)$$

$$U_n = B_0 + B_nB_n + B_3C_n$$

$B_0, B_1, B_2, B_3,.....B_n$ represent the parameters to be estimated and they express the consumer preference.

9.3.4 MODEL SPECIFICATION.

A patient in a given part of a given country does not have the full knowledge of ALL the choice options available to him. Patients are assumed to consider just those options that are available and within their means - these make up the choice sets.

For ease of modelling, the survey was limited to one health district and the choice set was limited to six options - the government health centres and hospitals, the private health centres and hospitals, traditional healers and self-care. The choice set is known before the final choice is made and the patients trade-off characteristics of options in the decision process.

9.3.5 THE UTILITY FUNCTIONS.

The Utility function is usually presented in two parts, the deterministic and random components $V = U + \Sigma$. The deterministic part "U" keeps track of the average preference

of the population of patients for the different options and different patient characteristics. This part can be represented by a vector of attributes, $V = \beta_1 A_1 ; \beta_1 A_2$ etc. On the other hand, the random component is very necessary because certain characteristics attributed to certain choice options are unobservable and the way different people perceive the characteristics differ greatly. This is represented by the disturbance term, Σ in the equation.

The utility function is expressed in terms of the characteristics of the alternatives where the function U indicates the attribute's value on a utility scale. The utility functions can be represented as indicated below.

$$U1 = \beta_0 + \beta_1 \text{distance} + \beta_2 \text{Time} + \beta_3 \text{cost} + \beta_4 \text{Socio-econ}$$

$$U2 = \beta_0 + \beta_1 \text{distance} + \beta_2 \text{Time} + \beta_3 \text{cost} + \beta_4 \text{Income} + \beta_5 \text{hhszize}$$

$$U3 = \beta_0 + \beta_1 \text{distance} + \beta_2 \text{Time} + \beta_3 \text{cost} \dots \dots \dots (11)$$

$$U4 = \beta_0 + \beta_1 \text{distance} + \beta_2 \text{Time} + \beta_3 \text{cost}$$

$$U5 = \beta_0 + \beta_1 \text{distance} + \beta_2 \text{Time} + \beta_3 \text{cost}$$

$$U6 = \beta_0 + \beta_1 \text{distance} + \beta_2 \text{Time} + \beta_3 \text{cost}$$

In the model estimated, variables put into it were only those that were thought to be amenable to any policy action intervention. Hence only distance, travelled and waiting time, price, Socio-economic status, household income and household size were included. Table 9.1 indicates the definition of the variables used.

TABLE 9.1: DESCRIPTION OF THE VARIABLES FOR THE MULTIVARIATE ANALYSIS.

VARIABLE DEFINITION NUMBER

I. DEPENDENT VARIABLE

VISIT	Health provider visited within last 2 weeks prior to survey.
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■ Govt health centre (Visit = 1)	Patient treated in last 2 weeks in a public health c.	216
■ Priv health centre (Visit = 2)	Patient treated in last 2 weeks in a private health c.	20
■ Govt Hospital (Visit = 3)	Patient treated in last 2 weeks in public hospital	81
■ Priv Hospital (Visit = 4)	Patient treated in last 2 weeks in private hospital	34
■ Trad. Healer (Visit = 5)	Patients treated in last 2 weeks by traditional healer	68
■ Self care (Visit = 6)	Patients sick, no medical professional seen; treated at home or no treatment at all	184]

The definition of the independent variables are the same as indicated in chapter 8, table 8.1.

9.4 RESULTS OF THE MULTINOMIAL LOGIT MODEL (MNL).

Table 9.2 indicates the estimated results for the total sample of 603 individuals reporting an illness within two weeks prior to the survey. The dependent variable is choice of health care provider [visit]. The variables household size and socio-economic status were treated as dummy ones. For the household size, it took the value of 1 (one) for households with 6 or more members or else it was 0. For the socio-economic level, high socio-economic level was given the value 1 or else it was 0.

TABLE 9.2: ESTIMATION RESULTS FOR THE MULTINOMIAL LOGIT

Variables	Coefficient	T-ratio	Notes			
Travel time	-0.1782E-02 (0.538E-03)	-3.7	For all the health care providers in the district			
Price	-0.2347E-04 (0.394E-05)	-6.0	For all the health care providers in the district			
Variables	Government H centre	Private H centre	Government hospital	Private hospital	Tra	self-care
Constant	1.430	-0.2959E-01	0.5276	-0.1368	0	0.9317
Std. deviation	(0.719E-01)	(0.259)	(0.992E-01)	(0.155)		(0.666E-01)
T-ratio	19.9	-0.1	5.3	0.9		14.0
Socio-econ:CO	-0.8202E-01					
Std. deviation	(0.702E-01)					
T-ratio	1.2					
Income: CO		0.1355E-04				
Std. deviation		(0.151E-05)				
T-ratio		9.0				
House size:CO		-0.2771				
Std. deviation		(0.426E-01)				
T-ratio		-6.5				

* Sign will be different in shaded area for the variable concerned if it is put into the utility function for that choice alternative (For example see Appendices 9.1A and 9.1B for a situation where the income variable is put into either the utility functions of the private or government health centres)
CO Coefficient

9.5 FACTORS ASSOCIATED WITH THE CHOICE OF HEALTH CARE PROVIDERS.

Several independent variables proved to be statistically significant. The income variable is far more significant than others, followed by household size, distance and price, time, distance and socio-economic status variables. The Socio-economic variable is the least important and is not significant ($T = 1.2 < 1.96$). The next section that follow will discuss each of the variables as it relates to the choice of health care provider.

9.5.1 RELATIONSHIP BETWEEN HOUSEHOLD INCOME AND THE CHOICE OF HEALTH CARE PROVIDER.

As was the case in chapter 8, the income variable takes the expected positive sign. The more the income of the person, the higher the probability of choosing a private health centre. However, the coefficient is less than 1. When household income increases, the

chance of choosing a government health centre is low meaning that rich households prefer seeking care from private health centres (see Appendices 9.1A and 9.1B).

9.5.2 RELATIONSHIP BETWEEN TRAVEL TIME AND THE CHOICE OF HEALTH CARE PROVIDER.

The time spent travelling to consult in a health unit is an important factor that influence the choice of health care provider. The travel time took a negative sign as expected. This is in keeping with economic theory which indicates that the more time is spent travelling to a health unit, the smaller the probability of patients choosing the provider.

Total time spent in a health unit is made up of waiting time, treatment time, laboratory examination time and time spent at the pro pharmacy. The total time took a negative sign as expected. This is in keeping with economic theory which indicates that the more time is spent in health unit, the smaller the probability of patients choosing the provider.

9.5.3 RELATIONSHIP BETWEEN HOUSEHOLD SIZE AND THE CHOICE OF HEALTH CARE PROVIDER.

In the health district under study, households are made up of members from many families. Household heads have many members who have come from relatives to live with them. The wealthiest had, on the average, many more members (7.8) in their household compared to the poor who had only 4.8. The lower middle 25% of households had 5.6 people while the upper middle 25% had 6.8. It would have been expected that the household sizes of the poorest respondents were greater than those of the wealthiest. This apparent reversal of the situation might be due to the fact that, as one survival strategy

in the face of the economic crisis, the poorest people send some of their household members to stay with their rich relatives. In times of social and economic hardship, poor families have been known to send their children to well-to-do relatives (Safilios and Rothschild, 1980). In the literature, it has been shown that small households are usually the poorest (Mohan and Harthie, 1984), though this might vary with the environment.

On the one hand, one expects that the more people there are in a household, the more average annual income they will bring into the household. On the other hand, it is also argued that the more people there are in a household, the less the capita amount, representing individual welfare, allocated to each member of the household. A larger family has less income per capita than does a smaller one on the same income. The two situations above are somehow conflicting: the more people there are, the more the income but the less the per capita allocation leading to a decrease in the demand for health care. Thus the effects of household size on the demand for health care is very unclear.

In this district, work for which a wage can be earned is limited hence the fact that a household has more members does not automatically make them richer. Larger households behave as people having low income. This variable took a negative sign and was significant in the multinomial logit procedure. As household size increases, the probability of choosing a private health centre decreases, income remaining the same. Conversely larger households have a higher probability of choosing government health centres than private ones.

9.5.4 RELATIONSHIP BETWEEN PRICE OF HEALTH CARE AND THE CHOICE OF HEALTH CARE PROVIDER.

Prices affect the choice probability of a health care provider through a budget constraint. It is assumed that the prices of the alternative providers are compared and that

provider who is seen to be able to provide the needed goods (services in this case) with more benefits to the patient for a given amount is chosen. The price per visit in the health units as reported by a patient is taken as a proxy for the "price" of the outpatient service. It was made up of the sum of fees for consultation, laboratory examinations, drugs and transport cost. It is here assumed that since the prices were reported by the patients themselves, they based them on their understanding of the fee schedules operating in each of the health providers.

Using the multinomial logit procedure, the price variable took a negative sign as expected and was statistically significant though the coefficient is less than 1. This implies that as the price increases, the choice probability decreases though individuals are not very sensitive to the price of health care.

9.5.5 RELATIONSHIP BETWEEN SOCIO-ECONOMIC LEVEL AND THE CHOICE OF HEALTH CARE PROVIDER.

The first and second quartiles from chapter 6 were combined to form the group of the poor while the third and fourth quartiles formed that of the rich. The socio-economic variable took a 1 for the rich and a zero (0) for the poor. In the estimation, it took a negative sign which implied that the higher up the social ladder one is, the lower the probability of choosing the government health centre.

9.6 ESTIMATION AS A NESTED MULTINOMIAL LOGIT MODEL.

When the model is estimated as a nested one, the price (price) variable becomes insignificant together with the socio-economic variable otherwise there is no significant

difference between the multinomial and nested multinomial logit models (see appendix 9.2 for Nested results and section 9.3.2).

9.7 PROPERTIES OF THE ESTIMATED MODELS.

9.7.1 TESTS FOR MIS-SPECIFICATION

The "goodness of fit" uses summary statistics to determine the accuracy with which the model approximates the observed data.

The Rho-squared statistics (likelihood ratio index) is commonly used and it varies between 0 and 1 though there are no guidelines in the literature for deciding whether or not a rho-squared value is sufficiently high. McFadden (1974), has suggested that a Rho-squared coefficient of 0.2 - 0.4 should be taken as representing a good fit of the model but this does not however mean that the model is adequate. When corrected for the degrees of freedom and the number of alternatives in the logit procedure, they are called adjusted R^2 . Kim Byung-Ryang (1990) found the RHO-SQUARED coefficient for the probability of choice of hospitals in the Republic of Korea to range between 0.2943 and 0.3729 (adjusted 0.2923 and 0.3710) compared to 0.2566 in this study (Table 9.3).

The null hypothesis that all the coefficients are zero can be rejected for all the coefficients except that of the socio-economic variable at the 5% and even at the 10% significance levels using a two tail test with critical values of ± 1.96 and ± 1.64 at the 95% (0.05) and the 90% (0.10) significance levels. Furthermore, based on the likelihood ratio, CHI-SQUARE (X^2) with 7 degrees of freedom (7 variables) values at the 0.005 and 0.001 confidence levels are 20.3 and 24.322 respectively. The null hypothesis that the probability of choosing an alternative health care provider is independent of the model's explanatory variables is rejected at the 99.9% confidence level.

TABLE 9.3: SUMMARY STATISTICS

#1 FROM THE MULTINOMIAL LOGIT MODEL

NUMBER OF OBSERVATIONS	603
LIKELIHOOD WITH ZERO COEFFICIENTS	-6498.7116
LIKELIHOOD WITH CONSTANTS ONLY	-5442.3802
FINAL VALUE OF LIKELIHOOD	-4831.1008
$-2[L(0) - L(B)]^{39}$	3335.2216
$-2[L(C) - L(B)]^{40}$	1222.5588
RHO-SQUARED (ZERO)	0.2566
RHO-SQUARED (CONSTANTS)	0.1123

#2 FROM THE NESTED MULTINOMIAL LOGIT MODEL

NUMBER OF OBSERVATIONS	603
LIKELIHOOD WITH ZERO COEFFICIENTS	-6498.7116
LIKELIHOOD WITH CONSTANTS ONLY	-5442.3802
FINAL VALUE OF LIKELIHOOD	-4802.8393
$-2[L(0) - L(B)]^{41}$	3391.7446
$-2[L(C) - L(B)]^{42}$	1279.0818
RHO-SQUARED (ZERO)	0.2610
RHO-SQUARED (CONSTANTS)	0.1175

The above null hypothesis is however not an important one. A more important one is that the coefficients are zero except a constant which captures effects specific to alternatives. The test for this hypothesis is distributed asymptotically with $(K-J+1)$ degrees of freedom (7 variables - 6 alternatives + $1 = 2$). The X^2 values are 10.6 and 13.815 for the

³⁹ $L(0)$ is the log likelihood of the fitted model under the null hypothesis that all the coefficients are zero. $L(B)$ is the log likelihood of the fitted model which includes all the parameters.

⁴⁰ $L(C)$ is the log likelihood of the fitted model with only the constants.

⁴¹ $L(0)$ is the log likelihood of the fitted model under the null hypothesis that all the coefficients are zero. $L(B)$ is the log likelihood of the fitted model which includes all the parameters.

⁴² $L(C)$ is the log likelihood of the fitted model with only the constants.

0.005 and 0.001 confidence levels respectively. The null hypothesis can again be rejected at the 99.9% confidence level.

From the data and the methodology of the analysis for the multinomial logit procedure, 0.17 adjusted R^2 of the variation of the dependent variable is explained by the independent variables. It is possible that the remaining 0.83 can be accounted for by a combination of random factors, inaccuracies of the data used for the estimation, and misspecification of the hypothesized structural form. It is also more likely that other factors that influence the probability of choice of health care providers exist. For example, the influence of friends and relatives, familiarity with some workers in some units, the presence of a known relative in one of the units and the propensity to seek health care from public health units for some given level of pain are possibly factors but they are difficult to measure and account for in the procedure of this study.

According to Hausman and McFadden (1984), it is necessary to estimate the parameters from both restricted and unrestricted choice sets and if the parameters are approximately the same, then the multinomial logit model is not rejected. Within the context of this study, several models were estimated. Some were done with distance in the absence of travel time, and vice versa but this did not improve the results because they were strongly correlated (appendix 8.1). Using the simple and nested multinomial logit model analyses, it was seen that the likelihood ratios were not very different (table 9.3).

9.8 THE DIRECT AND CROSS PRICE-ELASTICITY OF DEMAND

In this study the model was applied to the same data set that was used to estimate it. The model was seen to be useful for the prediction of choice of provider and the responsiveness of patients to price of health care by the calculation and interpretation of

elasticities (Table 9.4). The price-elasticity was the only one considered since it is a variable of much policy importance in community financing. Elasticity can either be direct or cross. Direct price elasticity refers to a percentage change in the probability of choosing a given alternative, as a result of a percentage change of the price in the utility function of that alternative. Cross-elasticity, on the other hand, measures the percentage change in the probability of choosing an alternative as a result of the change in price in the utility function of an alternative. The positive and negative signs of the price elasticity respectively indicate an increase or decrease in the probability of choice. The higher the absolute value of a variable's elasticity, the more sensitive the choice to the value of that variable. If the elasticity is greater than 1, it is said to be elastic but if it is less than 1, it is said to be inelastic. In table 9.4 that follows, it is seen that the price elasticities for all the options were less than one, hence they are inelastic.

TABLE 9.4: DIRECT AND CROSS PRICE ELASTICITIES (*) OF DEMAND

Alternatives	Govt health centre	Private Health centre	Govt hospital	Private hospital	Trad. healer	Self care
Govt H. centre	-.0692	.0351	.0345	.0377	.0348	.0350
Priv. H. centre	.0199	-.0155	.0198	.0198	.0200	.0199
Govt hospital	.0416	.0394	-.3127	.0418	.0414	.0418
Priv. hospital	.0293	.0265	.0298	-.5200	.0299	.0296
Trad. healer	.0055	.0060	.0049	.0060	-.0512	.0055
Self-care	.0059	.0059	.0057	.0061	.0057	-.0149

The signs of the elasticities are all in agreement with what is expected from economic theory. All the direct elasticities took a negative sign implying that any increase

⁴³ The direct price elasticities of demand are represented by the left to right diagonal in the table. There are all negative. The other figures represent the cross elasticities.

The table should be read as 'the elasticities of demand with respect to price of '<< the alternative on the left >>'

in the price of treatment at any of the providers will of necessity reduce the probability of choosing it. For example, a 1% percentage increase in price will reduce the probability of choice of the private hospital by 0.52%, of the government hospital by 0.31%, of the private health centre by 0.02%, of the government health centre by 0.07%, of traditional healer by 0.05% and 0.01% for self-care (see diagonal in table 9.4 above). It is seen that the probability of choice of the private hospital is more sensitive to price than other providers.

Demand for outpatient care in the government health centres is therefore inelastic (-0.0692). Any introduction of community financing with for example, a 100% increase in price will result in the probability of choosing the government health centres reducing by 6.9%. Furthermore, health care in government health centres is free at the point of delivery except for the drugs. There is no substitute for good health, hence the patients have to find the money required to pay for health care.

Concerning the cross-elasticities, all had a positive sign implying that any increase in the price of any of the alternative choices resulted in an increase in the choice probability of the other alternatives. Hence if the price of treatment at the government health centre is increased by 1%, keeping all others constant, the probability of choice of the government health centre will decrease by 0.06% while that of the government and private hospitals, private health centres will increase by 0.04%, 0.03% and 0.02% respectively with most patients going from the public health centre to the government hospitals. The probability of choice of traditional healers and self-care will increase by 0.005%. On the other hand, a 1% increase in the price of treatment at the private health centre will result in an increase in the probability of choice of private hospital by 0.02% compared to 0.04% increase in the government health centre. This means that if the price of treatment at private health centres is increased by 1%, more people will move to the

government health centres than they will move to the private health centres when there is a 1% increase in the price at government health centres.

9.9 IMPACT OF COMMUNITY FINANCING IN GOVERNMENT HEALTH CENTRES ON THE UTILIZATION OF HEALTH CARE PROVIDERS.

This section deals with the impact of eventual introduction of community financing in public health facilities. The section begins with results of discussions with focus groups from all the main villages served by public health facilities about the observed trend of patient load. It is followed by estimation of the impact of different scenarios of price and other accessibility factors on the demand for health care from government health centres. For the simulation, focus is made on the price-elasticities of demand for health care at the different scenarios reflecting the potential effects of introducing community financing.

9.9.1 TRENDS IN PATIENT LOAD.

The traditional healers and health personnel were asked to evaluate the trend in patient load at the time of this study compared to what they had seen at the same period the year before. A year before the study, free drugs were readily available in the government health units. Within the year, the economic situation of the country worsened and drugs were being sold in the health centres within a public provincial revolving drug fund.

From the discussions with the health professionals, the general opinion was that the number of patients was on the decrease. It was suggested that the decrease might be related to the absence of "free" drugs that were available the year before.

One health professional working in a government health centre noted that

"In our place patients are decreasing due to fact that the free drugs we had last year are no more. But we are gradually sensitizing them to adopt the new system of buying drugs".

Other reasons for the decrease were also mentioned by health professionals. One reason supported by most of the health professionals was that of the effect of a rumour about vaccines which was mentioned by one participant (⁴⁴). It was thought that this had a detrimental effect on public health unit utilization. One participant stressed this by saying that:

"There was once a rumour that when women come to PMI [maternal and child health centre] they are administered a drug which makes the child to be a stillbirth. So they decided to turn their attention to Banso [where there are mission health units] so the number of patients especially pregnant women we use to have for the laboratory and consultation has reduced".

Most of the traditional healers except the one that had practised for over 35 years, were of the opinion that the number of patients they had seen this year (1992) were not as many as those seen within the same period last year (1991). They blamed the lack of money for the decrease and strongly believed that many more people were self-medicating now than before. One traditional healer who had practised traditional healing for over 20 years indicated that

"Last year, I had many gastric, stomach and anal problems but this year the number has reduced. May be because there is no money".

To support the point of self-medication, it is worth noting that the participants of the focus group of influential village people said that every family in the village "cooks" some type of traditional medicine. Some traditional healers believed that the reduction was not only due to the absence of money but might also be attributed to the changing pattern of illness in the area. He said

⁴⁴ There was a rumour around the province that the antitetanus vaccine given to pregnant women was to sterilise them ending up with stillbirths.

"For me the treatment of patients this year has reduced compared to last year. Reduced this year because the type of illness has also reduced"

However the situation is not as grim as presented by most of the participants. Some health centres had registered an increase in their patient load which they attributed to their integration of primary health care activities like outreach activities for vaccination in villages added to the activities of the health centre. In the words of a health centre team leader, "payment for drugs in public health units and shortage of staff resulted in the reduction of the number of patients because sometimes a child may be brought at night and there will be no other person to attend to. However, when the integration of primary health care started, ANC [antenatal clinic] and the sick population increased".

9.9.2 THE POTENTIAL EFFECTS ON UTILIZATION OF INTRODUCING COMMUNITY FINANCING IN PUBLIC HEALTH UNITS.

This section attempts to quantify the effect the different community financing price levels have on utilization. The situation narrated above where an increase in patient load was seen following the integration of primary health activities by way of outreach activities was also modelled to show the effect of a situation where money is handled by the community and its management determined by them.

The impact is determine by varying the community financing price charge in different scenarios and noting the effect on utilization through elasticities (Table 9.5). Particular stress is laid on the introduction of community finance with and without an improvement of accessibility of the public health centres. The improvement of accessibility is simulated by a reduction in travel distance and time. The changes in the price-elasticities of demand are noted. In practical terms, the reduction in time and distance does not mean the building of new health centres in villages which will require vast resources and additional staff. It involves the re-activation of the health posts in the

villages with trained community health workers since it is assumed that improvement in the utilization of health services will depend very much on the health promotion activities undertaken in the field. Table 9.5 indicates the elasticities that result from various levels of prices for treatment in government health centres. In other words, the table below summarizes the implications of different community financing levels with respect to the probabilities of utilizing the different options. It is assumed in this study that the community financing price charge increases only in the government health centres while in the other health units, they are held constant.

As the level of community financing increases, the degree of responsiveness of demand for health care in government health centres increases too. It is assumed that when the resources are managed by the community, they may decide to improve accessibility of health facilities by opening up health posts in villages that can be used by health centre staff for outreach activities. By so doing the travelled distance and time cost of the patients are reduced considerably.

When the price of treatment was such that it could recover the total recurrent cost (except salaries), the reduction in utilization is substantial. When 850 frs cfa is added to the present price of treatment, the utilization reduces by 0.14%. If this amount is increased to 1200 frs cfa, the utilization decreases further by 0.002%.

On the whole, demand for health care will fall if community financing charge is raised and/or introduced though the reduction in government health centre utilization is very small.

TABLE 9.5: IMPACT OF DIFFERENT LEVELS OF COMMUNITY FINANCING: DIRECT AND CROSS-ELASTICITIES OF DEMAND WITH RESPECT TO COST OF GOVT HEALTH CENTRE.

Health Provider (1)	Base elasticity (see table 9.4) (2)	Increase initial cost by 5% (3)	Increase initial cost by 5% and reduce time and distance by 5% each (4)	Increase Initial cost by 10% (5)	Increase initial cost by 10% and reduce time and distance by 10 % each (6)	850 cfa francs added to the initial cost (7)	1200 cfa francs added to the initial cost (8)	Reduce initial time by 10% (9)
Govt H.Centre	-0.0692	-0.0727	-0.0725	-0.0762	-0.0758	-0.0829	-0.0886	-0.0687
Priv. H.Centre	0.0351	0.0367	0.0369	0.0382	0.0387	0.0409	0.0432	0.0356
Govt hospital	0.0345	0.0361	0.0363	0.0377	0.0382	0.0407	0.0432	0.0351
Private hospital	0.0377	0.0394	0.0397	0.0411	0.0416	0.0438	0.0463	0.0383
Trad. healer	0.0348	0.0364	0.0366	0.0380	0.0385	0.0410	0.0435	0.0354
Self-care	0.0350	0.0366	0.0368	0.0382	0.0387	0.0412	0.0437	0.0356

NOTE: [The increases in costs and reductions in time and distance are only in Government health centres].

- (2) Base-line elasticities as at the time of the survey.
- (3) Elasticities when the cost of treatment is increased by 5%.
- (4) Added to (3) above, total time and distance is reduced by 5%.
- (5) Elasticities when the cost of treatment is increased by 10%.
- (6) Added to (5) above, total time and distance is reduced by 10%.
- (7) Elasticities when the cost of treatment is increased by 850 frs CFA.
- (8) Elasticities when the cost of treatment is increased by 1,200 frs CFA.
- (9) Elasticities when only the total time is reduced by 10%.

However the price-elasticity of demand for health care is smaller when it is accompanied by a reduction in the distance travelled to seek health care and the time spent in seeking this health care (improved accessibility) (Table 9.5). The lesser sensitivity to change of price in the presence of any improvement is probably related to the fact that people might regard this as an improvement in quality and are willing to pay more for it.

9.10 POTENTIAL OF COMMUNITY FINANCING TO RAISE REVENUE.

As indicated above, the fee elasticity is low and any price effect may be "cancelled out" by an improvement in the distance travelled and time spent for treatment.

For the estimation of the potential revenue that can be raised by the introduction of community financing in government health centre, the formula proposed by Ellis (1987) and discussed in appendix 9.3 will be used. The estimated revenue that can be raised is indicated in table 9.6. The actual revenue keeping the decrease in utilization at different community financing levels constant is 51.3% of the potential revenue when the various factors have been taken into account. This is however an overestimation. The level of the actual revenue is one that can make a contribution to the health care cost for the government health centre. The actual revenue recovered might be lower than indicated due to the existence of close substitutes of health care provided by private health centres.

As already noted, when there is an increase of community financing, there is a reduction of utilization. Introducing and/or increasing community financing would bring in some resources and at the same time would deprive a segment of the population of access to affordable health care. The utilization trends in the district in the past years have indicated seasonality and a decline (appendix 4.5) which has been attributed to the economic crisis which results in people having less disposable income (litvack, 1992).

TABLE 9.6: POTENTIAL AND ACTUAL REVENUE RAISED BY DIFFERENT COMMUNITY CHARGE LEVELS IN A GOVERNMENT HEALTH CENTRE (amounts in FCFA).

Community Financing charge (cfa)	Annual Potential revenue ⁽⁴⁵⁾	Actual Annual revenue ⁽⁴⁶⁾
200	521,429	267,493
500	1,303,571	668,732
600	1,564,286	802,479
750	1,955,357	1,003,098
850	2,216,071	1,136,844
1000	2,607,143	1,337,464
1500	3,910,714	2,006,196

It is here assumed that other health care providers do not raise or introduce community financing or user fees. If the community financing charges collected are left in the health unit and this is used for example, to open up health posts in the villages, to pay transport to see patients for outreach activities, there will still be a reduction in utilization but not as would have occurred if the fees were all paid into the government treasury.

The amount raised when compared to what is spent is not really much (see *Appendix 4.8* for health centre expenditures per month). Taking just the community financing at 200 frs cfa per outpatient, the revenue generated is already covering from between 15% to 23% of

⁴⁵ Annual Potential Revenue (APR) = Fee level X Number of outpatients per day X 365 X 5/7.
For example, a health centre seeing 10 patients a day will provide the following potential revenue if a visit is priced at 200 cfa francs per visit. Assumption is a working week of five days.
APR = 200 frs * 10 patients * 365 days * 5days/7days = 521,429 Frs cfa.

⁴⁶ For calculation of the actual revenue, it is assumed that 75% of outpatients will be eligible to pay but only 90% of these will be able to pay. On introducing the community financing it is also assumed that 5% of the patients and consequently demand will reduce though this might increase with increasing levels of fees. It is held constant for ease of calculation. In the final analysis, after administrative costs have been paid, only 80% of the revenue is left in the health centre for the health committee to use in improving the accessibility of health services to the population.

Actual Annual Revenue (AAR) = Potential Rev X 0.75 X 0.9 X 0.95 X 0.8
521429 * 0.75 * 0.9 * 0.95 * 0.8 = 267,493 cfa francs (cfa).

a government health centre cost. This means that Community financing cannot by itself cover all the recurrent cost of the government health centres.

9.11 SUMMARY.

In this chapter, the factors that are associated with the choice of health care providers in a health district have been explored using a multinomial logit model. The choice of health care provider is associated with time spent for treatment, household income and size, distance to health provider, socio-economic status and price.

Estimating the impact of community financing on utilization of health care providers, it is seen that there will be a decrease in utilization of public health care facilities (health centres) with the introduction of community financing. This has important implications for the revenue that can be expected to be raised if community financing is introduced/increased.

Health professionals and traditional healers indicated during the focus group discussions that they had noticed a drop in the number of patients who consulted them a year ago. This was attributed to a lack of money, change in morbidity pattern and the economic crisis in general.

CHAPTER 10

DISCUSSION OF RESULTS.

10.1 INTRODUCTION

This chapter discusses the results of this study which has attempted to determine the responsiveness of health care demand to community financing. It starts with a discussion of the methodology followed by that of the base-line utilization of health care providers in the district especially the factors that influenced their choices.

10.2 DISCUSSION OF THE METHODOLOGY OF THE STUDY.

A number of methods which are complementary were used for this study. The household interview survey (HIS) carried out in the home of the respondent collected information about the use of all health services in the district. From the literature review, it is indicated that this method cannot collect information on a very "sensitive" subject like the use of traditional healers and cannot explore in detail why a service was used (Kroeger *et al.* 1988). It was therefore necessary to use a qualitative method -Focus group discussion - to explore some of the attitudinal and subjective factors that influenced the use of health services. For example, staff attitudes was indicated as an important factor in the choice of public health services. It was also used to determine the degree of community support for community financing while examining the beliefs and practices of the community members, a thing which could not be done by the household survey.

The HIS methodology was used to collect data that was used for econometric modelling which is one method of economic evaluation (Carrin, 1984). Econometric modelling has so far been used only in three countries south of the Sahara:

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Côte d'Ivoire (Gertler et al. 1990; Dor et al. 1987), Kenya (Muthuri et al. 1989; Mwabu et al. 1986) and recently Nigeria (Akin, Denton et al. 1990).

As concerns this study, several problems have been identified and attempts made to overcome them while applying econometric modelling to the HIS data. These problems can be classified into two broad categories.

- (i) Issues concerned with methodology of data collection
- (ii) The basis of econometric modelling.

i) ISSUES OF METHODOLOGY

The EPI methodology was used to sample the survey units. In general principle, households are supposed to ^{be} sampled independently of each other to get a representative sample. However by using this method and selecting a starting households and moving to the nearest one does not appear to result in a selection of a representative sample. Households which are in the same geographical area might have some factors which are common to them (that helps or prevents them from seeking health care for example). In this study, the problem was surmounted by dividing the villages into smaller units which were treated as individual sampling frames. By so doing, the chances of the chosen houses being a representative sample of the households in a village were high.

Health care providers are not a homogenous group but include a range of traditional, modern public, modern private and informal health care providers. Even within the packages provided by the different providers, a range of preventive, curative and promotional care is available. Health care has been discussed as if it is a homogeneous commodity. Health care is heterogenous and includes drugs, out- and inpatient care, doctors' and nurses' services, immunization campaigns, sanitation services, Health Education, health promotion, hospital and nursing home care. The

above consideration led De Ferranti (1985) to categorize health care into three main groups: curative care, patient related preventive care and non-patient related preventive care. This study concentrated on outpatient care as a whole. The price-elasticity of demand was inelastic and it might have been different if outpatient care was disaggregated into its various components in which case, demand might have been elastic with price for some of the components. Furthermore patients might have suffered from more than one illness but this study considered only the chief complaints (illness) reported.

Considering the household levels, perhaps a more serious problem was the fact that most of the women were out in the farms when the interviews were carried out. Because of this, men tended to report more of their illnesses and the actions taken than those of women. If they were present, it is assumed that they would have indicated their illnesses. Even if the women were present, access to them would still have been difficult. It would have been impossible to get the information from them in the presence of their husbands since it is culturally not accepted that somebody's wife be left with strangers. The underrepresentation of the ailments of women compared to men can also be attributed to the fact that the interviewers were all males. The husbands might have been reluctant to tell interviewers what their wives were suffering from especially as they were local people. The results have therefore to be interpreted with some caution. However the sampling was randomly done (see appendix 6.1 for contrast of the sex and age distribution of the study sample with that of the last national census results).

ij) THE BASIS OF ECONOMETRIC MODELLING.

The limitation of this study to the first health care providers used gives a simplified view of the health seeking behaviour of people in this district and the

factors assumed to influence this behaviour. This ignores the diversity of treatments that people undertake in case of an ailment. But this study could not be done in any other way because the interest was not on sequential choice of health care providers but only on the first provider chosen for a given episode. This was done for the simple reason that, with community financing, it is envisaged to charge a registration fee in the health centres for the first visit. Subsequent follow-up visits to government health units are assumed to be free of any charges.

This study used a discrete choice framework and the analysis is based on the choice-preference approach. This takes account of the choices that are available to people in a given area and postulates people's behaviour with respect to the characteristics of the choice. Adopting this approach permits a simplification to be made(i.e. only one trip by the individual has to be surveyed) to allow the analysis of choice using quantitative methods (Desmond, 1991). A multinomial logit analysis has been used because the health area population has the possibility of making a choice from among multiple health care providers.

The estimation of the demand model is based on the utility theory. Markets which are effective assume that consumers, in this case patients, are able to order all combinations of health care services and/or providers according to their preferences and will select the first choice. The ordering will include a consideration of the price and other costs that the patient will pay out-of-pocket. It is also assumed that the patients know the benefits as well as the probabilities of all the risks involved. Unfortunately, in health care, these basic principles may hold to a lesser degree.

Using a model assumes that the situation is static and the relationship between demand and the independent variables remains constant over time and elasticities can be used to explain it. Using elasticities which estimate the effects of small price

changes, it is not clear what will happen in case of major price changes. Furthermore the price responsiveness of demand are small probably because it was impossible to control for the severity of the ailments and the quality variation across facilities.

10.3 TREATMENT CHOICE BEHAVIOUR.

The finding of this study that 30.5% of respondents reported self-care in response to an illness is a little less than the 35% found in a Norwegian study as reported by Grimsmo quoted by Dean (1986). Unlike in this study, in that from Argentina, a greater proportion of the respondents (56.5%) indicated that they undertook self-care (self treatment and doing nothing). The above means that the probability of being sick and seeking professional treatment is 0.12 per 2 weeks (⁴⁷) or 0.24 per month while that for being sick and seeking no treatment is 0.05 per 2 weeks or 0.11 per month. This is within the limits of findings that the probability of being sick and seeking treatment in Kenya, another Sub-Saharan African country, lies between 0.22 and 0.26 per month (Huber, 1993).

Of the 419 who sought professional treatment, 68 (16.2%) were treated by traditional healers. The "modern" health services were visited by only 351 persons (83.7%) giving a period prevalence of 10.2%. Of this percentage, the government health centres were consulted most as was the situation seen in Kenya by Mwabu (1986). The above finding differs from that found in Cairo, Egypt, where 71% of total outpatient visits were made to private and charitable hospitals (Ellis *et al.* 1994). The period prevalence would have increased if the female illnesses had been better

⁴⁷ The probability is calculated by dividing the number of people who reported an illness and used professional health care providers (including traditional healers) divided by the total population surveyed. In this case, $419/3441=0.12$.

reported. If this is extrapolated to an annual rate, an estimated 2.7 visits ⁽⁴⁸⁾ per person per year is made to providers of "modern" health care. If the norm of 2.5 visits per person per year proposed by King (1966) for health care planning in Africa is accepted, the reported ratio of 2.7 is slightly more than that reported by King. This is however lower than the 3.3 contacts per person realised in China (Gu Xingyuan, 1993). This results suggest that in the area of this study, the people are keen on seeking medical care when sick from providers of "modern" health services.

10.4 BASE-LINE UTILIZATION OF HEALTH PROVIDERS.

Health resource available to the rural population in this health district is pluralistic. This pluralistic nature of the health resources has also been indicated by studies in Bangladesh (Claquin, 1981), Ethiopia (Slikkerveer, 1990), Côte d'Ivoire (Lasker, 1981), Nepal (Subedi, 1989) and more recently in the South West Province of Cameroon (Batangan, 1992). This study like the one done in the South West Province, found that people have four or more major alternatives which include (1) treatment by public health facilities, (2) treatment by mission or other private health facilities, (3) treatment by local traditional healers and (4) self-care ⁽⁴⁹⁾. Self-care in this case does not only refer to the taking of medications but includes remaining in bed and reducing normal activity. This has in other surveys been taken as indicators of poor health. Berkman quoted by Dean (1986) proposes that this be taken as health care rather than

⁴⁸ This is arrived at by dividing the period prevalence by 100 and multiplying by 26; the number of 2-week periods in a year.

⁴⁹ Some patients who have been to a health unit before know the names of some drugs used for particular ailments. These patients, when sick with something which they evaluate to be similar to an earlier ailment or one suffered by a relative or friend, simply go to pharmacists and ask for the drugs. Some may seek advice from the "lay doctors" the pharmacists. This is part of what is termed self care. The other part is made up by those who decide to use a traditional medicine or a "modern" drug they have at their disposal.

as a measure of morbidity or disability. In this study like in many others (Dean, 1981, 1986, 1989; Wilkinson *et al*, 1987), it has been seen that many symptoms and illnesses are treated outside the formal health system. Self-care and traditional healers are expected to persist as alternative treatment options probably because of their cultural compatibility with patients especially those from rural areas.

The alternatives as mentioned above and noted during the qualitative part of this study (confirmed by the results of the household interview survey), differ from each other in a number of ways. First, those who undertook self-care used traditional home remedies and "western" medicines but the other alternatives used either one or the other though this does not rule out the fact that traditional healers can adulterate their herbs with "western" medicines. This phenomenon of adulteration of traditional medicines by traditional practitioners has been noted in many other areas. For example, in India, Bhatia *et al* (1975) quoted by Akin *et al* (1985) discovered that 70% of 93 full time traditional practitioners used "modern" medicine exclusively or in combination with indigenous medicine.

Of all those surveyed and aged 15 years and above, only 603 reported an illness, giving a general period prevalence of 17.5% within a recall period of two weeks. This prevalence is lower than others: 25.3% from Argentina (Kroeger *et al*, 1988), 30.5% from Nigeria, 34% from India, 33.1% from Indonesia, 38.7% from Colombia and 30.5% from Ethiopia (first round survey) (Makonnen, 1985) but higher than the 12% estimated from a household survey in Cairo, Egypt (Ellis *et al*, 1994). The differences might be explained by the fact that in some of these countries like Ethiopia, the population was made to understand that the government was going to send health workers to treat the sick and injured. People might therefore have overreported though from Ethiopia, Slikkerveer (1990) also reported a prevalence of

37.1% with a recall period of twelve months which is less than the 17.5% found in this study for a reference period of two weeks. With the study reported by Slikkerveer, the memory loss and a bias towards chronic diseases might have been greater and probably responsible for its lower prevalence.

The difference might also be attributed to the lower rates of reporting of female morbidity by the head of the household in the Ndop survey. It is found in this study that men demanded more health services than women. This is in contrast to a study in Italy of the demand for health services which found that "women on the average demand 20% more services than men..." (Mapelli, 1993). On the other hand, Kroeger (1985) quoted a study done in Ecuador where women reported more illness episodes than men but did not use more health services. Frerichs et al., (1980) in a household survey in Bolivia did find a higher reported rates of female morbidity.

If the prevalence of this study is extrapolated to an annual rate, an estimated 4.6 episodes per person per year (⁵⁰) is obtained. This rate is a little more than three times the 1.34 reported from Rwanda by Shepard et al. (1987). 69.5% of the episodes in this study received some form of treatment from a health care provider in the district which is higher than the 43.5% found in the study from Argentina (Kroeger et al., 1988), higher than the 63% estimated from a study in Cairo, Egypt (Ellis et al., 1994) but lower than the 76% reported from Rwanda.

⁵⁰ The period prevalence is calculated by dividing the number of those reporting an illness by the total population surveyed multiplied by 100. The annual rate is then the multiplication of the period prevalence by 26 two-week periods since the recall period was two weeks.

10.5 FACTORS INFLUENCING DEMAND AND LEVEL OF UTILIZATION OF HEALTH SERVICES.

This section will discuss the findings as concern the factors that influence the demand and utilization of health care in the health district under study. The household characteristics will be presented and discussed followed by those of the health service.

10.5.1 THE INFLUENCE OF INDIVIDUAL AND HOUSEHOLD FACTORS ON THE CHOICE AND LEVEL OF USE OF HEALTH CARE PROVIDERS.

The partial coefficients explain the responsiveness of the total public health centre expenditure (proxy for quantity of care used) to changes in each of the independent variables. The partial coefficients of all variables were less than 1. Each of the variables will be discussed below.

i) INCOME

Income is statistically significant for the choice of facility but inelastic. Health care in this area is not a luxury but a necessity [(low price elasticity ($0 < \eta_p < 1$) and income elasticity ($0 < \eta_y < 1$)]. It is a normal good since the income elasticity is positive and the effect of price is less for those who have higher incomes. On the contrary, Musgrove (1983) found in Latin America that the income elasticities ranged from 0.81 to 1.34 resulting in the conclusion that health care is a luxury good since on the average income elasticity is more than unity. Newhouse (1977), using data similar to that of Musgrove had income elasticities ranging between 1.13 and 1.31.

From the estimated models, income is not associated with the expenditure made at public health centres. The above situation is important for the explanation of the

difference in health care consumption between the rich and the poor. It means that the poorest households spent the greatest proportion of their income for health.

When the total household monthly income was divided up into quintiles, it is seen that the expenditures/visit (including opportunity cost of time) for treatment varied from a low 2,808 cfa francs (CFAF) (US\$7.9) for the first and lowest quintile to a high 7,259 cfa francs (CFAF) (US\$106.3) for the highest income quintile. This represented a range of 8.2% to 25.9% of average income of the quintile being spent for treatment. This association between higher income status with higher health care expenditure has also been reported from rural Indonesia (Berman et al, 1987). This probably indicates the fact that the rich preferred using the private health care providers as was the case from another study from Indonesia (Chernichovsky and Meesook, 1986). It could also be related to the greater use of all providers (Lasker, 1981).

This phenomenon of people with higher incomes tending to use health services equally or more even when they are free, as found in this study, (table 6.9) is not only limited to the area of this study but has also been documented in literature for developed and developing countries. Nyman and Kalimo (1973) and Salkever (1975), comparing health systems present data indicating this tendency. Schwabe (1990) also noticed a similar tendency in Sudan. Several explanations have been put forward to explain this seemingly controversial situation where the poor or those in the lower socio-economic group access the health services less than the rich. Among these include the lack of financing, the culture of poverty and the cultural differences in health beliefs and the way the health care delivery system is structured [referral system, level of supply of services and distribution of services] (Neumark et al, 1992; Rundell and Wheeler, 1979; Dutton, 1978). It might also be related to the lower

educational levels of the poor as well as to the opportunity cost of time of the poor especially if they have to seek health care during the farming season (Mwabu, 1988).

The expenditure/visit for health care in public health centres takes up almost 0.1% of total mean household monthly income for some people (Table 6.1). Though the percentage of mean household monthly income spent for treatment in public health centres looks small, it is necessary to consider the fact that the time the households need health care might not be that at which income is available. The percentage of monthly household income spent for health care excluding the opportunity cost of time varied from 10.1% for the wealthiest to 20.7% for the poorest 25% of the respondents. If the opportunity cost of time is included the range increases from 11.4% for the wealthiest 25% of respondents to 25.7% for the poorest 25%. The trend is in agreement with what was found in Côte d'Ivoire (Lasker, 1981) where it was found that the percentage spent for health care is inversely related to income. However, in absolute terms, the amounts spent by the poorest households is less than that spent by the wealthiest ones (Griffin *et al.* 1983). Other studies have had similar findings. In Kenya and Tanzania, it has been found that the disparity in health expenditure between the poor and the rich on an illness episode was quite great, 64% and 29% of households income in Kenya and Tanzania respectively was spent by the poorest quartile (Gomes, 1993) for a illness episode described as typical. This is in direct contrast to the 1% spent by the highest quartile on an illness episode in both countries (Gomes, 1993). In both countries, free or low cost health services were available.

The impossibility of comparing these studies might be attributed to the different methodology used in calculating the incomes and treatment cost. In this study, unlike the others, income does not only refer to the available cash but includes the monetary value of the weekly own-consumption of agricultural products, family allowance, sales

of crops, and owner-occupied rents. Since income is based on that which is self-reported and it is well known that there is a seasonality of many sources of income (Mwabu, 1988) in rural areas, the studies might have not been carried out in the same seasons.

Income alone cannot produce good health as is the case with the direct provision of health care; hence it does not give rise to the demand for health care. Income is used to buy those ingredients necessary for good health like nutritious food, good drinking water, good housing and improved environmental sanitation. People with more income will be able to use health providers and be able to buy the required ingredients when needed more than those who have little or nothing at all. This study like one from Cairo, Egypt (Ellis *et al.*, 1994), found that health care expenditure increased with increase in income.

ii) SOCIO-ECONOMIC LEVEL.

From a policy point of view, it is interesting to note that of all those sick and consulted the different providers, only 10.0% and 5.9% of those using the private health centres and private hospitals respectively were from the poorest 25% of the respondents. This compares to the 60.0% and 50.0% of the respondents using the private health centres and hospitals respectively from the wealthiest 25%. The wealthiest group of respondents use the private health units more than the poorest group (table 6.5). Though fees exist in private health units, there are still poor people who are able to pay.

On the other hand, 24.1% and 18.5% of those using government health centres and hospitals respectively were the poorest 25% of the respondents whereas 22.2% and 32.1% using the same government health centres and hospitals respectively were those who were among the wealthiest 25% (table 6.5). In rural Indonesia, Berman *et al*

(1987) also found that the poorer households use low cost government health units even when they perceived them as providing less effective services. In this study in Ndop, the wealthiest and the poorest appear to use the government health centres in almost the same proportion but the wealthiest use the government hospitals more. This lends support to the hypothesis that the choice of health care from public health centres is negatively influenced by socio-economic status. That is, people in the higher socio-economic group will choose to consult at a private health unit rather than at the public health centre (table 9.2). This finding is in contrast to the positive influence of the socio-economic status reported from Côte d'Ivoire by Lasker (1981). It is further found in this study carried out in Ndop that 23.5% of those who consulted traditional healers were among the poorest 25% compared to 20.6% from the wealthiest 25% of the respondents. This trend is seen with self-care where 34.8% were from the poorest 25% and only 18.5% were from the wealthiest 25%. This is comparable to results of a study carried out in Ethiopia where residents of higher socio-economic neighbourhoods in Addis Ababa used modern medical care more and traditional healers less frequently (Kloos *et al.* 1987). Studies of utilization patterns done in different parts of the developing world have indicated that the poor use more the traditional healers and free public sector units while the rich consult more the doctors where they are likely to pay and seek care in private health units. In the Philippines (Akin *et al.* 1985), in Indonesia (Chernichovsky and Meesook, 1986) and in Malaysia (Heller, 1982), similar conclusions have been arrived at. This is probably a reflection of the different attitudes to health care held by people in different social groups. It might also be because traditional healers are believed to be less costly and flexible, accepting credit in contrast to the "modern health units". These characteristics of traditional healers are important in rural areas where incomes might be seasonal (Mwabu, 1988).

Most of the poor respondents prefer to consult traditional healers or undertake self-care compared to the wealthiest respondents. Visits to government health centres is almost similar notwithstanding the socio-economic group. This means that the free care in government health centres which was intended to help the poor is not achieving that aim since the rich are equally represented.

The effect of community financing on accessibility by different socio-economic groups may differ. Even in the supposedly "free" system now in operation, this study found that the accessibility patterns of the different socio-economic groups varied considerably. The findings of this study are in line with those of others like Nyman and Kalomo (1973); Fergusson *et al.* (1984) and Gwendelman *et al.* (1986).

The poor who report more illness than the rich have no faith in the public health care delivery system which they regard as dehumanizing and offering little or no continuity of care. It is therefore not surprising to see that 35.9% of the 170 respondents who indicated that they were not prepared to buy any insurance card if it were proposed to them because they had no confidence in the health care delivery system. They consequently might not use the system when in need because they lack confidence.

Notwithstanding the above, community financing should not be rejected as a means of financing the health service. There are many countries that have had an improvement in health and health care while requiring that patients pay for components of their care (McPake, Hanson, and Mills 1991). In countries where the gap between the rich and the poor is very wide (large inequality of income and wealth), the possibility of community financing acting as a barrier to seeking health care should however not be ignored.

iii) HOUSEHOLD SIZE.

Household size has a positive association with health care expenditure in the public health centre (see table 8.3). It is hypothesized that a larger household will have a lesser per capita income than would have a smaller household. When the per capita income was regressed against household size, the coefficient assumed a negative sign confirming the inverse relationship between income and household size. Coreil (1983) found that families in Haiti with four or more children were limited in their abilities to pay for medical care.

The large households will choose to seek health care from public health centres rather than from private ones (see table 9.2). This is because the care in public health centres is provided free of any charge at the point of delivery though the drugs have to be paid for by the patient. This is unlike in the private health centres where fee-for-service is practiced in addition to the buying of drugs.

The above findings are in line with the report from Colombia that family size is positively related to health seeking behaviour (Selwyn, 1987).

10.5.2 THE INFLUENCE OF HEALTH SERVICE'S CHARACTERISTICS ON THE CHOICE AND LEVEL OF USE OF HEALTH CARE PROVIDERS.

i) PRICE FOR HEALTH SERVICES.

In Kenya, Mwabu and Mwangi (1986), found that even when fees were charged, low income people still were more likely to visit government facilities which is in line with the findings of this study. However, in this study 1.3% of the poorest 25% consulted at private health centres, 1.3% at private hospitals and 10.6% at traditional healers where payments for services is mandatory. This again supports the assertion

that even the poor now pay for health care especially as paying for health care is not new to most if not all of them in this district. While asserting that the poor are paying already for health care, one needs to be careful because if a flat rate for all were to be charged in the public health units, this would be regressive since it would tax the poor more especially as most of the government revenues come from indirect taxes. This is a conclusion arrived at by Gertler *et al* (1987) from a study in Peru. A study recently carried out in another Province in Cameroon ended with similar findings. Litvack (1992), comparing the cost of care ⁵¹ at health centres in areas with and without co-financing ⁵² found out that in areas with co-financing, the average cost of health centre care increased significantly compared to areas without. Furthermore, she found out that the cost of treatment for the poor also increased significantly in areas with co-financing compared to areas without though the cost per episode did not increase on the whole.

The average visit (consultation) price at government health centres is almost three times more than at the private health centres whereas they were more than five times higher at the public and private hospitals. This difference is attributed to the fact that officially government regulates the charges in private health units, and no regulation takes place in government health centres since no collection of fees (except for drugs) is supposed to be done. Any fee collection in the public health centres is therefore illegal and usually inflated for the gain of the collector(s).

Seeking the influence of price on the choice of health care, it was again seen that the direct and cross-elasticities were all less than 1 meaning that people were not

⁵¹ Cost of care as used by Litvack (1992) refers to the amount a person spends to obtain care which includes transportation, consultation, drugs etc and the opportunity cost of time seeking health care.

⁵² Co-financing refers to a situation where people are asked to pay for services (drugs, consultation etc) in health units which had earlier been provided free by the state.

very sensitive to price. Lack of information on the quality of care in the health units might have resulted in the low price elasticities observed. Prices charged often reflect the quality of care provided. Unable to control for quality, confounds it with price effects and tends to take the estimated price effects towards zero since price and quality influences demand in opposite directions. In Ghana, Lavy and Germain (1993) estimated the demand model with and without quality variables. The price coefficient was found to have declined from -0.11 to -0.08. This suggests that when quality variables are not taken into consideration, the price elasticity is biased downwards.

The tendencies in this study are similar to those in other studies from Burkina Faso (Sauerborn *et al.* 1994), the Philippines (Akin, *et al.* 1986), Rwanda (Shepard *et al.* 1987) and Malaysia (Heller, 1982). In Malaysia, for example, it was found that the cash price elasticity of demand was -0.15 for public outpatient clinics compared to -0.06 in this study and in Malaysia, the total outpatient demand -0.04. As concerns the choice of the health care provider, consumers are seen in this study to be as responsive to relative cash price of public outpatient as was the situation in Malaysia (Heller, 1982) (see table 9.5).

However, some of the studies done in developing countries and quoted above have also found that demand which is inelastic for a whole sample might become elastic when analyzed according to income quartiles (Sauerborn *et al.* 1994; Gertler and Van der Gaag, 1990). The rich appear to gain more from public subsidies than the poor probably because of (i) the private costs such as transportation and the probable illegal payments to health personnel made mostly by the poor. This is a situation that has been noticed in Ivory coast (Lasker, 1981). In Cameroon an article appeared in a newspaper indicating the scale of this problem and its effects on the patients especially the poor [see appendix 1.2] (ii) the differential costs and benefits especially as the

poorest people tend to live in rural areas and consequently have to travel farther to health units.

ii) DISTANCE.

The sample in this study faces an average travelling distance of 1.27 km to the traditional healers, 6.9 km to the health centre and 42 km to the hospital. Kadu and Segall (1981) indicated for Ghana that as distance increased, the level of use of providers decreased except for the use of hospitals where the reverse was true. When combined with other factors like time and transport cost, the effect of distance is greater.

If 10 kilometres is taken as the radius of the catchment area of the health care providers, it is seen that just 4.4% of patients of traditional healers come from beyond their catchment area compared to 23% for the health centres and 81.9% for the hospitals. Most of the visits to the hospitals (58.3%) are made by people who travel thirty kilometres or more (table 7.7). The above findings are supported by the views of participants during the focus group discussions who indicated that traditional healers were their "next door neighbours". Surveys and reports have shown that most patients visiting health units are from the immediate vicinity. For example, in a study undertaken in a training health centre in Gondar, Ethiopia where ante-natal services were free, it was found that 73% of the patients were residents of the town; 9% came from a radius of ten kilometres and 18% from as far as 120 kilometres (Ayalew, 1985). This study indicates that 95.6% of patients of traditional healers come from within their catchment area compared to 77% for the health centres and 81.9% for the hospitals. The government health centres and self care were seemingly very popular with most people especially the poorest 25% of the respondents. This popularity may be attributed to their nearness to the respondents and their less costly treatment

compared to the private health units. Lasker (1981) confirms this point by indicating that "people use first what is most available to them and that in cases of serious illness they are willing to make a greater effort to try something else which might be better".

As expected an increase in the distance travelled led to an increase in expenditure in the government health centre, hence the distance variable took a positive sign when regressed with the total expenditure in the health centre. Morrill (1970) indicated that people choose treatment sites (hospitals) on considering accessibility in the same way as they would choose where to buy their basic things. This is done by cutting down the travel time or cost, hence the nearest is chosen.

iii) TRAVEL AND WAITING TIME.

The travel time for treatment is negatively related to the choice of health care providers. This implies that as the time taken to seek health care increases, the utility obtained from the provider is seen to decrease. Unlike in this study, a study in the Philippines found that travel time was found not to be significant in the choice of provider for outpatient care (Akin *et al.* 1986).

Concerning waiting time, the longest was indicated by those who had visited the government institutions. Waiting time to seek health care took a positive sign when regressed against expenditure. This is probably due to the fact that some people take a long queue in a health unit to represent evidence of good quality of care. As Akin *et al.* (1986) found in the Philippines, as time to use public health facilities increased, the use of the public units in relation to the private ones also increased. They explained this by saying that there might be "the obvious possibility that waiting time at public facilities may be positively correlated with higher quality medical care". This however goes contrary to earlier thinking by Akin *et al.* (1985) that waiting time at public units made them less desirable to people. On the other hand, Heller (1982) noticed the same

phenomenon but explained it by indicating that his sample like the chance for "socialising" linked with the use of outpatient services in Malaysia. From the above it is seen that any efforts to reduce waiting time will reduce the cost of care to the patient at the government health centres but unless the quality effects are disentangled, any reduction in waiting time might have little or no impact on the behaviour of patients.

10.6 OTHER FACTORS INFLUENCING THE DEMAND AND LEVEL OF UTILIZATION OF HEALTH SERVICES.

It was determined from the focus group discussions and indepth interviews that cost came out as one of the factors that determines the choice of health provider. Other factors identified included (i) the cause and seriousness of the illness - if the illness was evaluated by the household to be serious, the probability of choosing a provider of "modern" health care was high; (ii) the fact that the home treatment of the illness is known or not - in case it is known the probability of self-care is higher; (iii) the attitude of health workers in public health units - the unfriendly nature of health personnel in public health facilities was highlighted as a deterrent to the use of public health units. It is however difficult to demonstrate this empirically though workers' attitudes make up one of the things people take into consideration when making a choice of provider. The way people regard the workers in the government health facilities is summarised by a government official during an indepth interview.

I would not say that the public health facilities are completely not well managed. It is just the attitude of workers in Cameroon to work less and earn more..... So if you look at the line of leadership, you find that it cannot be well managed because every worker seems to be independent. A man thinks the person directly above him cannot do anything much more than he can do. Control is not more there. Their [workers] names after all are in computers in Yaounde. Even if you write to yaounde, they say "I can also go there". There is a difference between the

voluntary agency health units and that of the government. With the voluntary agency health units, they work with sincerity. The voluntary agency have a short circuit and strike straight away and it works (government official).

The findings above about the factors that influence the decisions to seek care from a provider are similar to those that have been reported in literature about developing countries (Igun, 1987). Schwartz (1969) talks of natural and unnatural causes being factors influencing choice while Colson, (1971) mentions the factor of cost as a barrier to utilization of health care.

10.7 COMMUNITY FINANCING AND ACCESS TO HEALTH SERVICES.

Introducing community financing is seen as a way of generating revenue for the health system. The focus group discussions and the indepth interviews indicated that the people understood why it was necessary that community financing be introduced in health facilities. The participants agreed with reasons given by some traditional healers for introducing community financing. They indicated that "They [health workers] buy something when you are sick and cure you with. The money is to help people. I don't have any problem with that". (traditional healer). They indicated their willingness to pay but only on conditions that the staffing and equipment situations in the health units were improved considerably.

It is important that community financing does not interfere with the access to health care and the government subsidies to health. Health sector revenues will only increase with community financing if the government subsidies to the health sector are not reduced in line with gains from community financing. In rural areas, poorer households have the tendency to use low-cost government health services even if

perceived to be inefficient (Berman et al. 1987). Though community financing might not represent a high burden as indicated in this study, it may still be high enough to discourage some households from seeking health care.

In this study, it is seen that the cost of health care in terms of time lost from work and transport expenses is substantial. It was found that in government health centres patients spent 2.3 hours for treatment and up to 5.75 hours in mission hospitals. The range was from 1 to 5 hours 45 minutes. These are longer than what others have found. Daly et al. (1977) studying ambulatory care in one community found that the average amount of time spent for care was 44 minutes, ranging from 0 to 4 hours 40 minutes. Considering the official government regulations of an eight-hour working day, it means that people are spending 28.8% of a working day to seek care in government health centres and a much higher percentage in other health units.

In spite of the fact that the demand is inelastic to price, one still needs to be cautious when introducing community financing. Even though the price elasticities are low, the welfare effects of community financing can be significant. This is because given a fixed household income as appears to be the case in this district, increases in community financing charges will imply that the consumption of other things like food or education will be reduced. Low elasticities do not in themselves indicate whether or not the efficiency gain from community financing or the adverse equity effects of fees are low. In developing countries health services are already underutilized. A further decline in use of public health centres means that serious health problems are left to become more serious (Sauerborn et al. 1994). Since this study did not control for severity and quality of care, the price-inelasticity may be at least partially related to the fact that individuals are willing to pay more to get health care that they perceive as being of higher quality.

Even with zero-price at the point of service so much emphasised by the government, there are still general complaints of excessive expenditure for health care in government health units. The government health centres see on average about 10 patients/day and any community financing would just reduce this number further. Furthermore any increase in cost might re-enforce existing disparities in access and may make many people think of not going to seek care. People who are far from a health unit may find that access has further been barred by the introduction of a cash fee.

In the final analysis fewer people than otherwise would have been desirable would utilize the health services. Households which might see their access barred include the very poor who in most cases will have to forego some of their belongings if they have to seek care. This group of people are those that struggle with illness and poverty. When the person is ill, he is less productive and is cared for by others who have to forego working time and money. The loss of productivity and the cost of health care invariably leads to a sale of belongings.

It has been recommended that fees should be charged to encourage utilization of lower-level primary health care facilities because health facilities like hospital outpatient services are thought to be overcrowded by self-referred patients with illnesses that could have been easily treated in lower-level facilities (World Bank, 1993). A study in Chad, for example, found that 71% of all consultations in the Central Hospital were for problems that could have been treated in lower-level facilities (World Bank, 1993). Even if this were the case, charging a fee in this case is recommended to encourage the use of the Primary Health Care services (Abel-Smith, 1985) rather than discourage it though evidence in the literature is limited. In Lesotho, for example, higher fees were set at hospital levels compared to health centre levels with the aim of affecting the pattern of demand but the pattern of demand in favour of the hospitals did not change (Bennett, 1989).

What is still unanswered is the question as to whether community financing will reduce utilization. This question can be answered by simulating the increase of increasing the initial cost with and without the improvement in the accessibility of government health units. The improvement to accessibility involved a reduction in time and distance. This is achieved by re-activating the health posts with trained community health workers sponsored by the communities. It can also be done by changing the opening and closing times of the health facilities. When this simulation was performed on the data collected (see table 9.5), it was realised that as the community financing was introduced (addition of 5% or 10% more of the initial price), the elasticities decreased, meaning that utilization was decreasing too. However, when the increase was accompanied by an improvement in accessibility (reduction in time and distance)⁵³, there was a decrease in the elasticity but not as much as was noticed when only the price was increased. This situation whereby an improvement in accessibility resulted in increase in the utilization has been seen in Ghana. In Ghana, a SIMULATED policy of building facilities closer to households thereby reducing distances on the average by 25%, 50% and 100% improved access to health facilities by 42%, 95% and 245% respectively (Lavy, 1994)

10.8 REVENUE RAISING POTENTIAL OF COMMUNITY FINANCING.

The revenue that is got from the introduction of charges will depend on the price elasticity of demand for health care. If the consumption is reduced, the benefits will also be affected. There is evidence from this study that consumption will reduce with a price increase though not significantly. This study has used the cost of care as a proxy for price and has also put more focus on the effects of pricing on the pattern and level of demand. Price changes for services of one provider may affect the quantity of services of other providers demanded. The level of demand for substitute

⁵³ Improvement of accessibility (time and distance) can be achieved by re-activating the now defunct health posts that earlier existed in the villages, changing the opening and closing times of the health facilities and improving the road and transport infrastructure.

types of services whose prices remain unaltered increases (as the price of one service rises, the demand for the other unpriced service rises).

The relationship between prices and cost-recovery in health care is complex since consumers make payments that are independent of prices such as the opportunity cost of time and transport cost. Users of health care providers thus face a price which depends in large part on their distance from health care provider (West and Lowe, 1976). Price as used here refers to any payment, per unit of service, that is made to a health care provider. Cost-recovery per unit of service, on the other hand, is the proportion of unit cost that is covered by the price.

Examples of community funding of health care exist in many countries among which are Zaire, Guinea Bissau, Guinea, Kenya, Liberia, Senegal, Uganda, and Zambia (Moens, 1990; Chabot *et al.* 1991, McPake, *et al.* 1991). It has not been shown if they yield a substantial amount of health care finance on a national scale (Abel-Smith, 1986) except in developing socialist countries where financing was based on local rural collective production (World Bank, 1984)

It has been said that a user fee by itself cannot raise substantial amounts of resources (Yoder, 1989) hence the need for governments to continue supporting the health care delivery system. In Swaziland, although government fees were increased by 3 to 4 times, the amount of money collected after the fee increment was very small in comparison with total recurrent costs. The same can be said of community financing. In Thailand, though community financing covered almost half of the rural villages of the country in 1987, it was able to contribute less than 1% of the total health expenditure (Wibulpolprasert, 1991). Community Financing should be just one element in a financing approach with many components and as Carrin, (1987) stressed, it is supposed to be " a short-term solution for administratively poor countries".

CHAPTER 11
IMPLICATIONS FOR POLICY AND FURTHER RESEARCH,
RECOMMENDATIONS AND CONCLUSIONS.

11.1 SUMMARY OF DISSERTATION

The dissertation has analyzed the demand and utilization of health care providers in one health district in Cameroon. Chapter 1 presented the situation of health care financing in Cameroon. A detailed literature review about community financing, the demand and utilization of health care services is provided in chapter 2 while methodological issues that concern the household interview survey, focus group discussions and procedures used for data collection are discussed at length in chapter 3. Chapter 4 describes the methods and instruments used for the study, the conceptual orientation, sampling techniques and interviewing procedures. The selection of households included in the study using the EPI survey methodology and the interviewing procedure are also presented in this chapter. The socio-political, administrative, demographic characteristics as well as the national economy and health care delivery system of Cameroon were discussed in detail in chapter 5. The analysis of the economic situation of Cameroon indicates clearly that it is an economy in crisis with an underfunded health care delivery system.

1093 households with 6441 individuals were interviewed and only 603 households have an individual that reported an illness episode two weeks prior to the survey. The focus group discussions were undertaken with four groups of participants from all the main villages of the health district selected by the different village health committees. Documentary evidence was obtained from health unit records, payslips of

staff members of health facilities, district and provincial government papers, monthly morbidity and mortality reports from the health centres. The data collected was analyzed using qualitative and quantitative methods. The data is presented and analyzed in chapters 6 - 9. Evidence is presented to show that the present government policy of free health care does not achieve its aim of helping the poor have access to health care. Rather than help the poor, this policy ends up benefiting the richer members of the community by allowing them a disproportionate slice of government subsidies to the health care delivery system.

Chapters 10 and 11 presents the discussions and conclusions of the study respectively.

11.2 WHAT IS SPECIFIC ABOUT THE STUDY.

The debate about community financing as indicated by Litvack (1992) has so far been treated as a "yes" or "no" problem: should it be introduced or not? The starting assumption for this study is that there is a felt need for community financing now in Cameroon. Rather than argue, it will be necessary to look directly at the effects that community financing will have on the population without losing sight of the "yes and no" question above.

Unlike most studies of this nature in developing countries, this one takes a broader view of health care in the district. First, in this connection, not only is a household interview survey carried out but focus group discussions are also carried out with the health care providers, their users and non-users. Second, the study is formulated to assess factors which affect the choice and utilization of health care provider in a health district. Third, using household survey data, this study attempts to

assess the probable effects of the introduction of community financing on household expenditure and health care utilization under varying conditions. The effects of community financing on household health service utilization, and household welfare may vary between countries, between regions of the same country and even between households in a given community. This study has been formulated bearing this in mind and simulates a situation where community financing results in the improvement of accessibility of government health services. Fourth, this study simulates the potential of government to raise revenue from the introduction of community financing.

Putting this study in its proper context, consideration has to be given to the fact that it is generally accepted that prior to introducing user fees for government health services in areas where these were originally free, it is necessary to assess the effect on the welfare of the individuals especially the rural poor. This analysis of the effects of the introduction of community financing is the more necessary if one considers the fact that Cameroon like most developing countries, had committed itself to the objective of universal access to health services whose goal has been to ensure that affordable health care is available to all citizens irrespective of income and location (World Health Organisation/UNICEF, 1978).

Most studies have looked at community financing from the angle of user fees for drugs. This is understandable because it has been found that patients prefer to pay for drugs rather than for services: patients in the past will flock to the health centres when there are drugs but will be unseen when the drugs go out of stock (Litvack, and Bodart, 1993). In the area of the study, drugs are already being paid for by the community members but the money from the drug sale is used to replenish the drug stock. The communities having considered the above, have in most cases thought it

wise to introduce payments for services (i.e consultations) in health units. This will supplement any "profits" got from the drug revolving fund.

11.3 SUMMARY OF FINDINGS OF THE STUDY

- 1) The demand for outpatient care from the various providers is inelastic (see table 9.4). In government health centres the demand elasticity is -0.0692. It is therefore predicted that a drop of 6.9% of the probability of using the government health centre will result if community financing charge increases by 100%. On the whole, *Community financing in public health centres will be accepted though there is a tendency against payment in-kind.*
- 2) Even though it is said widely in the Province that health care in public health facilities especially in health centres is free, *patients incur substantial cost for services including the opportunity cost of time, no matter the choice of provider.*
- 3) Most of the participants and users of the health care delivery system in this district indicated during the focus group discussion that they were willing to support community financing but *they stressed the difficulties they encounter at the present moment (with a poor economic situation) with finding the money to pay whether to mission, government or traditional health care providers.*
- 4) From this study it has been seen that *the more income one has, the more the chance of spending more in public health centres (Tables 8.3 and 8.5) and the more the probability of choosing private health centres (Tables 6.9 and 9.2) compared to public health centres.*

5) It is worth stressing here that *community financing by itself is not the best solution but only one among many*. This is because the amount of revenue raised is not much compared to the expenditure made in the health centres (see section 9.10, table 9.6).

On the whole, there are individual, household and health care provider characteristics that are seen to influence negatively or positively the demand and level of utilization of health services in the district under study.

In this study, it has been shown that expenditure in government health centres is influenced positively by income, distance, waiting time, household size (number of people in a household) and assets (see tables 8.3 and 8.5).

On the other hand predictors of the choice of health care providers include income, price, household size, travel time and socio-economic level. Price and travel time negatively influence the choice of all providers. For the government health centres, household size positively influences its choice while income and socio-economic level negatively influences it (see table 9.2).

11.4 EVALUATION (HAVE THE OBJECTIVES OF STUDY BEEN ACHIEVED?).

This section will look at the specific objectives of the study to see whether or not the study has achieved them.

- i) **To determine the base-line health care utilization patterns in the health district.**

From the survey and data analyzed and presented in chapter 6, it has been determined that in the health district under consideration, households have the possibility of choosing from among six alternatives of health care providers. Within a

two week period prior to the survey, all the groups of health care provider in the district had been consulted (see table 6.3). 69.5% of all the reported illnesses received some form of treatment from a health professional (public, private and traditional), indicating that people in this district had high regards for medical care. The prevalence rate was 4.6 episodes per person per year.

Households in the high socio-economic levels use the providers of "modern" health care more except for the government health centres that are used almost in the same proportion as those in the lower class. Those in lower socio-economic level prefer to use either self-care or traditional healers (see table 6.5).

- ii) **To determine the influence on the choice and levels of utilization of health care providers of individual and household factors such as household income, assets, household size, marital status, education of household members and socio-economic status.**

Levels of utilization:

The level of expenditure (utilization) in public health centres was positively influenced by household income, waiting time, distance, household size and

household asset. An increase in income results in more expenditure in health centres (and implicitly increased levels of utilization). Household size influenced the level of use of public health centres. Households with many members spend more in public health centres (use more health services) than those with many few members (see table 8.3).

Choice of health care provider:

The socio-economic level of the household, household size, travel time, price and income play important roles in the choice of health care providers. Being in the higher socio-economic group increases the probability of choosing a private health centre for health care (table 9.2).

Higher income families tradeoff price for time. Having an increase in income increases the choice probability of a private health centre. On the other hand, a larger household will reduce the choice probability of a private health centre.

iii) **To examine the perceptions of community members about community financing**

Community members understood the rationale for the introduction of community finance. It was not a new phenomenon because they have for a long time been paying in-kind and in-cash for private and traditional care. They expressed their willingness to pay for health care from public health centres though they indicated it was difficult getting cash considering the poor economic situation of the country. However, they reluctantly indicated that they can sell some belongings to be able to pay for health care through community financing. They also stressed the fact that they will only pay if the staff and equipment situation of the health centres was improved. In other words, they indicated that community financing could be successful if the resources are used to improve on the present poor state of the health centres.

- iv) **To determine the influence on the choice and level of utilization of health care provider of health service's characteristics such as price of services, distance from households, travel and waiting time to seek care.**

Level of utilization:

The influence of distance is not as expected. It was expected that the longer the distance from the provider, the more the expenditure (use) decreased. The relation was such that an increased in distance resulted in an increase in expenditure. Waiting time also had the same relationship with expenditure as distance.

Choice of health care provider:

The price of health services provided by health care providers negatively influence the choice of provider. It is assumed that the prices of all providers is compared by the patient and the provider who is able to provide value for money is chosen. From this study, there is evidence that the choice probability decreases with an increase in price.

The study result indicates that as travel time increases, so too the choice probability of health care providers decreases.

- v) **To predict the likely impact of introducing community financing of health care in the health district.**

Chapter 9 provides evidence by way of price-elasticities of demand to indicate that any increase in community financing will result in a corresponding reduction in the utilization of health care.

The direct price elasticities of demand were all negative indicating that any increase in price will result in a decrease in utilization. On the other hand the cross

price elasticities of demand were all positive indicating that any increase in price of any alternative will result in displacement of utilization from that alternative charging to another (see table 9.4).

Simulating the effects of introducing community financing with and without accessibility improvements, it was seen ^{that} when only the price was increased, say by 5% or 10%, the price elasticity of demand decreased from the original values indicating a decline in utilization. However, when the price increase was associated with an reduction in physical accessibility barriers in the form of distance and time, it was seen that the price elasticities declined but not as much as had been the case when only the price was increased (see table 9.5).

vi) **To estimate the revenue that can be raised at different cost levels.**

Using a formula proposed by Ellis in Kenya, it has been shown that a substantial amount of cash can be recovered from the introduction of community financing though the amount raised when compared to what is spent is not really much. Taking an arbitrary community financing charge of 200 frs cfa per outpatient, the revenue generated is already covering from between 15% to 23% of a government health centre cost. This means that community financing cannot by itself cover all the recurrent cost of the government health centres if it has to be affordable to all in the rural community.

11.5 STRENGTHS AND WEAKNESSES OF STUDY

11.5.1 SIGNIFICANCE OF THE STUDY.

This study is one that attempts to reduce the knowledge gap existing in the literature concerning the actual private cost of seeking health care in public health

units in Cameroon, as one of those developing countries that indicate that health care is free at the point of delivery.

It establishes a background which is important for the evaluation of the role households can play as potential sources of financing health care. It indicates the burden borne by families to get treatment for the sick.

It also attempts to make people aware of the fact that the government as of now cannot alone bear the responsibility for health care as was the case a few years back. The success of this study to create this awareness is evidenced by the open discussion now going on in the Cameroonian society about the introduction of fees in health units (See Appendix 11.1).

Finally, this study can also be seen as a direct contribution to the current international and national debate about "cost-recovery" in the health sector.

11.5.2 WEAKNESSES OF STUDY.

The study for this dissertation was done using a modified cluster sampling method for the household interview survey. Within the constraints of time and finance, the EPI methodology was the best that could have been used.

The study was conducted only in one district from among many in one of the ten provinces of Cameroon. This study serves as a case study, the finding of which might not in its totality be generalized to the whole country or even to the whole province.

One important weakness of this study is the under-representation of the illnesses of women. This is probably due to the fact that most of the household heads who were interviewed were males and the interviewers too were males.

Just using a single visit for an illness probably underestimates the out-of-pocket expenditure of the patients. This might result in the erroneous belief that all the patients are able to afford the cost of treatment as comes out from this study.

Political instability in Cameroon at the time of the study led to curtailing of the scope of some elements of the study.

11.6 FUTURE RESEARCH, POLICY AND ACTION

This section looks at the need for future research by proposing areas of major concern and also indicates the future policy and action.

11.6.1 IMPLICATIONS FOR FURTHER RESEARCH

From the results of this study, it has been seen that demand and the level of use of health care providers is influenced by socio-economic level. Evidence from the data show that those in the higher socio-economic level spend a lesser proportion of their median monthly income whereas those in the lower socio-economic quartile spend a higher proportion. This means that the "poorest of the poor" may be without access to health care even now that health care is supposedly free. This necessitates studies to determine the best strategies of exempting those who are really unable to pay. It would also be necessary to look at other areas of concern.

- It would be necessary to carry out similar studies in other areas.
- Since there is a variation of price of food, monthly income etc with the seasons, it would be necessary to eventually carry out another study in the same area but in different seasons to find out if there are any marked differences.

- Rather than work on the hypothetical situation in which community financing is introduced, it would be necessary to eventually carry out a similar study when community financing is really introduced to find out if there will be any difference between the study and this one.
- Further research is needed to find out specifically how much people are able to pay for community financing of the different health units without having to be worse off than when they had started (Borrowing, selling belongings etc). That is, it will be necessary to quantify how much was borrowed, what was sold and for how much etc.
- It would be necessary to carry out an experimental study to determine the implications and reactions of the community members to different payment schemes (For example, do people prefer fee-for-service including or excluding drugs, prepayment, fee per episode etc).
- Analyze the effects of quality of care on utilization after agreeing with the health care providers and consumers what quality means.

The list of areas indicated above is not exhaustive but only indicative of the areas where it is thought that some form of reforms and positive influence is possible.

11.6.2 POLICY IMPLICATIONS

Since health care has externalities, the policy objective should not be to recover full cost but to increase private financing while maintaining the present government subsidies. This is necessary to improve the fiscal constraints of the health care delivery system and eventually use the revenue to improve equity and efficiency. This can be done through several ways. For example, by introducing or increasing community financing charges in the public health care delivery system or by allowing the private

sector to expand freely, a thing not possible now due to the over regulations by the government. It can also be done by avoiding the concentration of public expenditure on only one group of people in one particular area as has been the case in the past (hospitals in urban areas).

Since there is inelasticity of demand with respect to price, charging for health care in government health units and using the resources to improve on accessibility appear to be acceptable and should be widely applied in this district to generate revenue. There needs to be a system to aid the poorest of the poor who will be unable to access health care services but one has to acknowledge the difficulty of doing this considering the hard attitude towards the poor indicated by the health workers during the focus group discussions. The cross-elasticities of demand indicate that when community financing is introduced, some consumers of health care in public health units will shift from them to private health units. This is good as it frees more public resources which can then be used somewhere else though resources cannot be easily shifted especially as "public finance is pooled centrally and redistributed according to government priorities" (Gilson, 1988). However with community financing, it is different because it is assumed that the revenues are mobilised and managed by the local communities. On the other hand, shifting of some consumers from the public to private will result in further underutilization of the public health centres. Furthermore, the amount of resources freed might not be sufficient to benefit the poor.

11.7 RECOMMENDATIONS

Community financing of the health care delivery system is a necessity considering the government budgetary constraint existing now and the health care

needs of the population. This section recommends and discusses some possible policy areas that could be acted upon with immediate effect.

11.7.1 POLICIES TO IMPROVE EQUITY IN THE HEALTH CARE

DELIVERY SYSTEM.

Looking at the utilization of the government health centres (table 6.5), it is seen that the proportion of the wealthiest 25% of the respondents is almost the same as that of the poorest 25%. However when the government hospitals and health centres are combined, the wealthiest are seen to use them more than the poorest. But when the utilization of the private health centres is looked at, it is seen that most of the people were from the wealthiest 25%.

Taking cognizance of the utilization pattern discussed above, the introduction of community financing in government health centres can be redistributive in favour of the low income households, hence it is recommended to be introduced. Redistribution is however only possible if the revenues from community financing are used to improve the accessibility of health care in the public health centres and the community financing is made affordable by a majority of the population.

As indicated by Mwabu (1987), the low income households will benefit more than the high income households from the improved services in the public health centres because they will use these services proportionately more than high income families. This is because as seen in this study and indicated above, the high income families are able to get health care from fee-paying alternative sources (private health centres, private hospitals). The wealthiest 25% do not need the improved public health centres as much as the poorest 25%. In India, it was noted that on introduction of

cheaper services in a local community, the low income families substituted the new services for other sources of care than did the high income families (Parker, 1986).

11.7.2 POLICIES TO REDUCE COST TO PATIENTS

The whole health care system should be involved in finding out the best solution to the fiscal deficit in the health sector. While introducing community financing, it would be necessary to reduce the extra cost of health care to patients especially those in the villages.

Extra cost can be reduced by the proper management of health personnel especially their assignment to health units, hence the system should be decentralized giving the health delegate in the province the authority to manage the health staff. This is the more necessary as the health centres see just about 10 patients per day on the average. Also important is the monitoring of the prescription practices of health workers. This necessitates the immediate introduction of diagnostic and treatment guide-lines.

There are also other positive developments such as the recommendation for a study of the feasibility of introducing a National health Insurance scheme as indicated by the Ministry of Public Health (Ministère de la Santé Publique, 1992).

11.7.3 POLICIES TO IMPROVE EFFICIENCY OF THE HEALTH CARE DELIVERY SYSTEM

The centralized system as the Cameroonian health care delivery system is presently administered does not in any way help in the improvement of the quality of care and the efficiency of public health services. Greater autonomy (decentralization) to the provincial and district levels would be required for any substantial improvement

in the quality and efficiency to be made. However more research is necessary in this area of the organization of the public health services especially as WHO (1988) has indicated very clearly that

"Decentralization of budgetary authority, for example, is crucial, to give local managers the flexibility to use funds to suit local circumstances so that they can respond to community priorities and plans. More generally, staff should be able to plan their programme of work free from rigid central guidance".

Up until now the government has regarded communities and their members only like passive consumers who have no part to play. With the deteriorating economic situation, it has become clear that the government cannot continue the running of the health units all alone. The government is beginning to recognize communities and their members as active participants in the running of public health units. There are structures being put into place to ease the running of the health units by the communities. Much more effort needs to be put into the formation and training of village health committees and management committees at both the village, district and provincial levels, and at the public and private health centre and hospital levels.

After having done the above reorganisation, it would then be necessary to relocate health facilities to villages (re-activating the health posts which are visited at regular intervals by health centre staff). It has been seen that the introduction of cheaper PHC services in a rural community resulted in an increase in the total number of medical visits per capita from 6 to 10.78 (Parker, 1986). Community financing charges should be made to vary with the level of the health care delivery system (Hospital or Health centre) and with the geographical situation of the health unit (urban and rural).

From the focus group discussions with the health professionals, lack of incentives, limited career perspectives and lack of fieldwork allowance contributed to low morale among health workers. Staff members of public health centres and

hospitals are in most cases stationary in their health facilities, only waiting for patients to come to them. One should not lose sight of this since it appears to be one of the ways the economic crisis affects the health services delivery system. Other manifestations include the chronic shortage of supplies (for example, Ogbu *et al.*, 1992, pointed out that Cameroon spent 22% of total recurrent health budget in the 1970s for drugs but only 8% in the 1980s) and basic equipment noticed by almost everyone who visits the public health facility. There is need for the service conditions of the health workers to be reviewed as well as the equipment situation of the health units. At the same time, the health workers should also be well trained to provide care which will be seen by the patients to be of high quality.

The staff cost and drugs make up a little more than 90% of the budget of most of the public health units in the area studied. The patients who consult in these units spent the highest proportion of their treatment cost on drugs. While discussing efficiency, it would be necessary to look at these areas. As of now the health system depends, for example, mostly on brand name drugs ordered in the majority of cases from Europe and paid for by the government (Foster, 1991). Unfortunately most of these drugs are misused by some health workers like those in Cameroon, where it has been estimated that 30 - 40 % of the drugs are taken out of the system for private use by the health workers (Van der Geest, 1982). The prescription practices of health workers is one of the factors that influence the use of drugs (Hanson and Chindele, 1992). Information about the way health workers prescribe might help identify areas to be followed up closely. Concerning the staff, there was a variation of trained staff seen in the government health units but it was interesting to see that staff only saw on average about 10 patients per day. Staff would need to be re-located in accordance with the workload though there are social and political reasons to put into place a

rational allocation of staff in health units as was indicated in Zambia (Hanson and chindele, 1992).

Policy issues that need to be addressed include (i) who should pay the community financing charges when introduced, (ii) how much people should pay and (iii) how the people should pay.

i) Who then should pay?

Those who should pay are those whose private returns are more than their social returns. On the other hand, they should also be those who have already benefited much from government subsidies. The conditions above point towards institutional care - curative care - in urban areas as compared to preventive care in rural health centres and hospitals. In other words, the use of subsidies by the government has to be more selective, hence services that have fewer externalities and favour the richer section of society (eg curative care in urban hospitals - see De Ferranti, (1985)) should have their subsidies greatly reduced.

All the community members benefit from having the health centre in their village. If there is a system of community financing to improve on quality, registration of all residents would appear to be the appropriate starting point. There is then the possibility of excluding outsiders or having them pay more.

ii) How much people should pay

From the study it would be appropriate to think first of a one-time Registration charge which might or might not include drugs. A Standard charge per drug or a charge per visit (fee-for-service) might also be considered. Theoretically, the payments should recover the marginal cost rather than the average one but seeing the underutilization of the health centres (10 patients/day), one wonders whether it is possible to cover any cost. The best solution might be to vary the payments with

income (ability to pay) but this is again difficult since it is not easy to ascertain the income for every patient and more so it places the burden of deciding on the health care worker.

It would however be difficult at this stage to pinpoint an amount that most people can easily pay without being worse off than when they started. In any case, from the focus group discussions, it was clear that most people will find it difficult to pay any amounts that are above 1000 frs CFA (US\$3.8) per visit. This will need further research to find out specifically how much people can be able to pay without becoming much worse off than they started.

iii) How should people pay

The modalities of community financing vary and each has its advantages and disadvantages. A choice has to be made of a modality which in a given socio-cultural environment has the advantages outweighing the disadvantages. In health centres, individuals would pay in cash rather than in-kind though it might be possible for individuals to pay in-kind too. During the focus group discussions, it was noted that people regarded payments in-kind to be subject to abuse by some health workers. This will need further research. The communities, on the other hand, could provide in-kind payments like labour, building materials etc for maintenance for the infrastructures.

11.8 GENERAL CONCLUSIONS

This study and others have indicated to us the importance of community financing, and particularly the use of resources within the communities to improve on the quality of care rendered. Efficiency and quality of care can only improve under certain conditions:

a) In the present system, there is inefficient management of resources since neither the patient nor the supplier (staff) bears the cost of wastage. This situation will change if there is a move towards community financing. The assumption here is that when patients are involved in financing the system, there is an incentive to look at cost more closely and to avoid wastage. Introduction of community financing shifts part of the risk of investment in the health care delivery system from the government to patients and their families.

b) Within the total subsidized system, the allocation of resources is according to laid down rigid norms which cannot be adapted freely to local conditions. For example, if the unit is a public health centre, it will receive a budget for a year not taking into consideration whether the number of patients treated increases or falls. Since the government is obliged to keep and pay the workers, in the presence of a budgetary constraint, the cut in spending will inevitably take place on such things as repairs of buildings, running cost of health centres, supply of basic equipment, to name just a few. If this system neither changes nor permit a reallocation to improve for example the quality of care, an introduction /increase in community financing might only be the short-term solution. Community financing will generate extra revenue which can be managed locally to meet the needs of the local population. The additional resources would allow the local community to maintain or even increase spending on those items seen to be necessary for an improvement in quality of care and the smooth running of the health units. This will inevitably increase the demand for health care.

One must not forget the fact that the community is an integral part of a country and the fact that the state should be able to provide some basic public health services to its citizens. The health care delivery system is part of a wider system of economic, social and even political services and institutions. The concept of interdependence and

interaction of the health care delivery system with others is the more necessary to take into consideration especially as the fall in the budget of the country does not affect only the health sector. As the health sector is thinking of community financing, so too is the education sector, the agricultural sector, the veterinary sector to name just a few.

The fact that some communities are able to mobilize resources for health does not mean that the need to re-distribute the overall national resources in order to achieve equity in accessibility to health care should be over looked. In the rural area, the economy is partially monetarized, and a large proportion of the food consumed is produced by the households from their farms. If private financing for health care were introduced/increased without any of the above considerations, the health care expenditures are likely to come from that part of the non-food budget which consists of cash purchases and possibly from the monetarized portion of the food budget.

Cost-recovery if well thought of should result in sustainability of the health project and community capacity-building but as is emphasized by Yacoob (1990), cost-recovery in some cases is becoming an end in itself. Components of a sustainable health project in a rural area include community ownership and responsibility for the system. This should be evidenced by the willingness to use (and pay for them), operate and maintain the services. It appears that sustainability has been more about payments than the development of community skills. What is clear is the fact that a community's ability to manage its health centre is not associated with any payment mechanism (Yacoob, 1990). In this study, it has been noticed that the community members are willing to pay for health care. But many community members are able to pay only after having sold their belongings, borrowed from friends or relatives or taken money from their savings. It is not clear what the long term end result of this ability to pay will be. Since some households have to borrow to pay, it might mean that this ability

to pay simply adds up to rural debt. In Thailand, for example, it has been seen that 60% of land sales were attributed to need for cash to finance health care (Baum and Strenski, 1989). The effects of the "ability to pay" as indicated in this study needs to be researched further especially as the study community sees the risk of poor health as being so great as to warrant their borrowing even far more than they can afford to meet the health care bill.

When self-financing is the main goal, training and educating the community to be responsible for the health care system may or may not occur. This does not mean that the idea of community financing should be dropped. We have through out the years noticed that the government's intention of making all health care available to everybody leads to rationing either according to time or geography. Any expansion of the public health sector will require that communities contribute to supplement government finances. This would add to the already substantial amounts of out-of-pocket resources.

As indicated by De Ferranti (1985), a distinction has to be made between those services that are very essential and those that are not; between those people who are needy and those that are not. Charging for services too has to take into consideration the above distinctions. The issue of health financing should also be linked to how available health resources are used. It will be very inefficient to add resources to a poorly managed health system. In the final analysis, the selection of a financing strategy or mechanism should be linked to resource distribution and use, health sector planning and management, service efficiency and health policy based on equity considerations (Bloom, 1991; Segall, 1991).

The time and scope of this study did not allow for the proposition of strategies to ease the cost barrier for the poorest of the poor. However any strategy proposed

would require the active participation of the communities and the decentralization of the health care delivery system especially the decision-making power and the financial management authority which until now are the prerogative of the central level of the Ministry of Public health. It is only after this that it is hoped communities will look at the health units as belonging to them.

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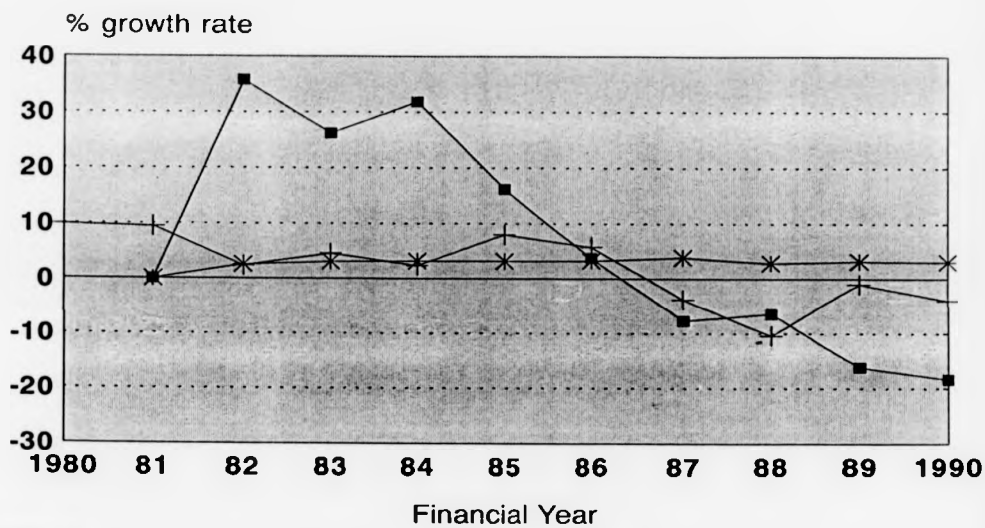
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APPENDICES

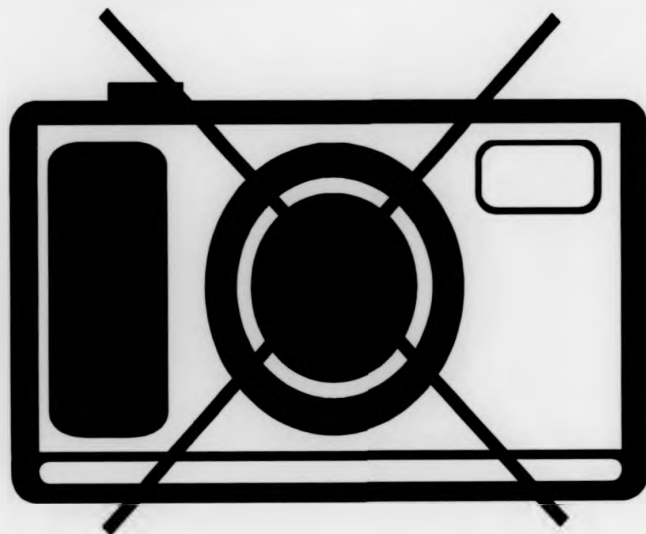
APPENDIX 1.1

COMPARISON OF THE PERCENTAGE OF THE AVERAGE ANNUAL
POPULATION GROWTH RATE WITH THAT OF PERCENTAGE ANNUAL
INCREASE OF THE HEALTH BUDGET.



+ GNP/Cap.growth rate * Av. POP growth rate ■ % increase Hlth budget

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APPENDIX 1.3

OPERATIONAL DEFINITIONS.

In this study, there are some concepts that appear frequently. Each will be defined as used in the study.

CAPITAL COST: It is principally the cost of the infra-structure (construction), provision of major equipment with a life span of more than a year and initial training of personnel.

COMMUNITY: Refers to a group of people living in the same geographical area such as in a village or town. In such areas, individuals participate in community groups because they hope to benefit from the combined actions of all the members.

COMMUNITY FINANCING: This is the direct financing of health care by rural households in villages or by households in distinct communities within urban areas; financing can be arranged either by payments upon receiving health care or by some form of prepayment or local health insurance. The revenue raised is managed in the local community. In other words, this is a locally based arrangement under which communities have an organised role in the support¹ for and management of services and finances. User fees or charges are just one possible modality that can be used in community financing among others.

DEMAND: The quantity of health care consumers wish and are able to buy at a given price within a given period of time. This goes beyond the common notion of "desire/want or need for". Unless desire/want is made effective by both ability and willingness to pay, it is not demand in this economic sense (Stoddart and Barer, 1981).

EFFICIENCY: This refers to the extent to which the implementation of an activity produces the greatest product at a given cost or a specified level of production at the lowest cost (World Health Organisation, 1987).

ELASTICITY: Economists use the term "elasticity" to indicate the responsiveness of changes of consumption of commodities, health care inclusive, to a change in any one of the factors that influences consumption. Price elasticity of demand is usually represented by eta (Lipsev, 1989).

FINANCING: This is raising of resources to support or pay for goods or services. The resources may be in the form of cash or in-kind like labour and materials. Health care as of now is financed by many different sources, the commonest being public or government and private.

¹ Support for services in this case will refer to the user charges which the community has decided should be paid by beneficiaries whenever a visit to the health service is made. It also refer to the paying for drugs in public health centres or hospitals.

HEALTH CARE DELIVERY SYSTEM: Health care delivery system as used here does not only refer to that system caring for the acutely and chronically ill but also to that which is involved in rehabilitation, case-finding, health maintenance, prevention of disease and disability, and health education.

HOUSEHOLD: A group of people habitually eating and sleeping together on the same compound under the acknowledged control of an individual - the head of the household. The head of the household is recognized by the villagers and village elders as such. Members of the household will be those who slept in the house during the night preceding the survey (de facto).

ILLNESS BEHAVIOUR: The activities that were undertaken by the patients in the study to define their illness and to discover a suitable treatment.

INCOME: Includes the earned and non-earned wages of all the household members. The earned income refers to wages and salaries coming from paid occupation. The non-earned income refers to that which comes from self-employment and from sale and consumption of agricultural produce as well as from investments which are usually interests or dividends. This gives an indication of the household's ability to purchase health care and other goods at that particular time (Wong *et al.*, 1987).

NJANGI or TONTINE: This is a name given to a group of people in Cameroon who have decided to come together to help themselves by forming a credit association. Its constitution can either be on tribal, work, age, sex or neighbourhood basis. At each meeting, all the participants contribute an agreed amount which is all then given each member in turn. This is repeated at every sitting which can be monthly or weekly as the case may be. Members also use it to save whatever money they may have. In case of urgent need of money, a member can borrow from the Njangi/tontine at an agreed interest rate.

OPPORTUNITY COST: This is an economic concept treating the true cost of a good or service as the benefit foregone from the other goods or services that must be given up in order to purchase it. Hence the opportunity cost time seeking health care from any provider is the monetary cost of the time spent for the visit to the provider (Akin *et al.*, 1985).

OUTPATIENT CARE: Curative care received by a patient in a health centre or hospital not involving any admission. Visits for preventive care are excluded since they are free.

PATIENT: Respondents from the study who reported they were ill in the preceding two weeks to the study as opposed to those who had not been ill.

PERCEIVED MORBIDITY: The illnesses that had been reported by the patients.

PRICE: The conceptual measure of price is the ratio of total out-of-pocket expenditure to the quantity of care. In this study, it refers to the cost of utilization (one visit) to any health care provider which includes the fee paid directly to the provider, the price of drugs, transport price and the cost in time. In the time cost is included the travel, waiting and treatment times.

PROPHARMACY: This is a drug store which is attached to the health unit and especially the government health centres. It is being operated in the Province by the Ministry of Health assisted by the German Agency for Technical Co-operation (GTZ). There is a central store at the Provincial headquarters which does bulk buying and then distribution and supervision.

RECURRENT COST: This is the cost of operating and maintaining the unit/service. It is expenditure that recurs such as the staff salary (Reveillon, 1987).

REGRESSION COEFFICIENT: This can be interpreted as the average amount by which the dependent variable changes, when the corresponding independent variable changes by one unit and the other independent variables remain constant (Everitt, B. S. 1994).

RESIDUAL: The error of prediction obtained by subtracting the actual from the predicted values for the corresponding variable.

SELF-CARE: A range of individual behaviour involved in symptom recognition, evaluation and in decisions regarding symptom response including the decision not to do anything about the symptoms, decisions to treat symptoms by self-determined actions or to seek advice regarding treatment (Fry, 1972). In this study it refers to an illness behaviour involving a situation where someone is ill and decides to do nothing or to take drugs bought from either chemists, hawkers, depots, or self-administered traditional treatment at home.

SIMULATION: A descriptive rather than an optimization methodology that involves developing a model of some real phenomenon and then performing experiments on that model. Based on results, the analyst can infer how different configurations of the real system would behave under various circumstances (Cook *et al* quoted by Parker *et al*, 1985).

USER FEES: This refers to a health care delivery fee system whereby a fee of some type is levied on users when they avail themselves of services. One can have a "fee-for-service" which is a payment per item of service. Unlike in community financing, the revenues from this system are returned to the higher levels and into the budget via the government treasury.

UTILIZATION: The use made of the outpatient service of a health care delivery system for curative care as a result of a joint decision by the health care provider and the patient (Stoddart and Barer, 1981). The charge per unit of outpatient care (expenditure) within two weeks prior to the interview is used in the study as a proxy for utilization (Grytten *et al*, 1993).

WEALTH: This refers to all the assets owned by the household. This of necessity, includes savings and properties such as land and homes. Wealth unlike income gives an indication of the assets of the households and the ability to respond to unexpected situations. In other words, wealth is a value for the resources that have been accumulated by the household over time (Wong *et al*, 1987)

APPENDIX 4.1

GUIDE-LINES FOR THE FOCUS GROUP DISCUSSIONS AND INDEPTH INTERVIEWS

A. FOCUS GROUP DISCUSSIONS GUIDE-LINES.

INTRODUCTION

- Welcome the participants
- Introduce moderator, observer and participants
- Give reasons for choosing them
 - * Common characteristics
 - * Knowledgeable on topic
- Explain the purpose of the study
- Indicate how discussion will proceed and ask for their total co-operation
- Explain the use of tape recorder and seek their consent to use it
- Welcome clear open expression of opinion and discuss confidentiality
- Answer any questions that may arise from participants
- Introduce the discussion topic: The health sector.

I. Availability of health care providers in the health district.

- Awareness of their existence in their areas
- Awareness of the services provided at the health centres
- Nearest health unit (distance, time)

II. Recent experience or that or relative with health care system.

- Most recent visit made to any health care provider (Govt, Mission, Traditional Healer)
- How would health unit be described (staff, services etc)

III. Decision to seek health care

- Reasons for choosing/not choosing health centre or hospital.
- Reasons for choosing/not choosing mission, government or traditional healer.

IV. Payments for health care made in the recent past

- Payments made in the recent past
- Reasons for the payment
- Sources of the money used
- Opinion about payment of fees in government units.

1. There is this story of a lady who had a child sick with fever in a village without a health post. It would appear that the lady really wanted to have her child treated. She was forced to hire a car but unfortunately did not know exactly where to go to in the first instance. She ended paying much money to have the driver take her to the Provincial hospital.

- * In this lady's position where would you have gone to in the first place and why?
- * What services are available in the unit you would have gone to?
- * How far away is this unit from your village/house?

2. Let us talk briefly about the many opportunities that we have in this area to seek for health care in case of an illness episode.

Many of you responding to the question about the lady did mentioned either Mission or government health centres or hospitals or traditional Healers.

- + Some chose a health centre rather than a hospital or a traditional healer. Are there any particular reasons for this?
- + Some chose the hospital rather than the health centre or traditional healer. Are there any particular reasons for this?
- + Finally, some chose the traditional healer rather than the hospital or health centre. Are there any particular reasons for this?
- + What is your opinion about your chosen system or that chosen by a member of your household?
- + What are the things you consider to be either bad or good about the chosen system?
- * What steps were taken when it became clear there was an illness in your household?
- * What is your or a member of your household's most recent experience with the health care delivery system (Modern and traditional).
- * Who decided a health unit should be visited?

3. Many of you have mentioned a visit made by you or a member of your household to a health care provider in the most recent past. You did say that the provider was quite far away and you had to pay transport to get there.

- * Can any of you let us know what payments you had to make in the health unit itself.
- + How much did you finally pay at the end of the day at the unit?
- + How did you do the payments? In kind or in cash.
- + What are the reasons behind the payments you made?
- + Did you have to pay for anything else in the health centre?
- + What could have happened if you were unable to pay?
- + Are there situations where somebody is exempted or given credit?

4. From the above discussions, it would appear people spend a lot of money on health care. In your case or that of a member of your household, how is the money to pay for the services got?
- + Do you usually have some money kept aside for things like going to the hospital or health centre for sudden illnesses?
 - + Has it happen that you have been unable to seek care in the health centre or hospital because you cannot pay?
 - + Do you occasionally have to forgo somethings (sell belongings, pound belongings etc) to be able to pay for health care in the health centre or hospital? What exactly did you forgo.
 - + If you have borrowed money, who did you borrow from and how did you pay it back?
5. Imagine a state when the situation becomes so bad that people do not frequent the health unit and of course the staff spend most of their time in their farm. The villagers have complained to the council and to the government but there does not appear to be any help in site.
Of recent, the government proposed that fees be instituted at the public health centres as happens in the mission ones to enable an improvement in situations where there is lack of basic necessities, falling buildings, leaking roofs, no painting of walls for long etc.
- * What will be your first reaction to such a proposal?
6. Imagine a situation were the decision is taken to permit people to finance their health systems through a health tax like the Cameroon Radio Television Corporation (CRTV) tax. Civil servants and other wage earners will pay directly from their salaries while Non-wage earners will pay as they do for the patent now.
- * What will be your reaction to this?
7. It would appear the sale of drugs has been in existence in most if not all the health centres for a long time now.
- * What comments have you to make concerning this system of drug sale
 - * Has it ever happened that you or a member of your family has been unable to get treatment because you could not afford the drugs?
 - * At the end of the year, the health centre is given some money as profits, what is the experience in the different health centres with this surplus.

- | |
|--|
| <ul style="list-style-type: none">+ These represent PROBES that should be used.* Represent core questions which need to be asked of all the participants. |
|--|

SPECIFIC FOR THE TRADITIONAL HEALERS.

1. Taking the last patient you treated as an example, what are the charges that you usually make and how are these paid to you?
2. What are the most common diseases that people bring to you and what are the reasons they give for coming to see you with them?
3. Considering your past consultations, where can you say the patients came from - had most of them been to a government health unit?
4. In your conversation with the patients, what problems had the mentioned they had in government health units?
5. Can you say honestly that your patients are increasing or decreasing compared to the situation of last year.
6. What can you say is your relationship with the public health centre nearest to you. Any cases referred to you or you to them?

SPECIFIC FOR THE HEALTH WORKERS.

1. If you were asked to honestly compare the number of patients you are seeing now with that of last year, can you say there are increasing or decreasing. Why?
2. You have lived in your community for at least two years now and you are regarded as a member of your different communities, how do people in your community perceive your health unit.
3. What can you say is the most difficult moments of your practice in a health unit?

B. INTERVIEWS WITH OFFICIALS OF MINISTRY OF HEALTH/RELATED DEPARTMENTS: INDEPTH INTERVIEWS WITH POLICY MAKERS, IMPLEMENTERS AND BENEFICIARIES.

- Do you think people are currently paying money in government facilities now?
- What kind of payments are being made?
- To whom are these payments being made?
- Is the ministry of health/administration aware of these payments?
- Have you ever had the chance (or even a close family member) to make any payments in a public health facility?
- Are there some people who you think cannot afford to pay for any services?
- What are these type of persons and whose responsibility is it to identify such people?
- Are these type of people able to receive health care? How?
- Are the public facilities well managed?
- What would you suggest should be done to improve their management?
- What do you think of a health tax as is the case of the CRTV tax now in existence?

APPENDIX 4.2
DATA COLLECTION AND ANALYSIS PROCEDURE FOR THE FOCUS
GROUP DISCUSSIONS.

A) BEFORE THE SESSIONS.

The focus group questionnaire was given to 10 people in the health district to find out if they understood what the questions wanted. This was followed by a limited piloting in a village with people as similar in socio-economic status as was possible to the ones in which the study was finally going to be carried out.

Letters were sent to the health committees reminding them of the focus group discussions and informing them that the chosen participants were to be given a stipend as well as transportation cost to and from their villages.

A few days before the discussions, the district medical officer was visited by the author and the site for the discussions selected and visited. On the day of the discussions, the moderator and the observers arrived the hall earlier than the participants and prepared the sitting arrangements (the participants, moderator and observer sat in a circle).

B) DURING THE SESSION.

Each of the four groups of participants was asked the same core questions except for additional questions depending on the issues to be expanded or the area being discussed. However, a general question was used to begin the sessions. This allowed each a chance to talk and adjust to the group. The other questions were being asked as the discussion progressed. Occasionally, the moderator would ask additional questions to probe more into an area or to permit the participants expand on an issue being discussed. While this was going on, complete notes were taken by an observer, and audio-taping was going on. The moderator was taking down important points and was closely observing the participants.

Each of the discussions lasted for a maximum of two hours though that with health professionals lasted for over two and a half hours. At the end of the sessions, the participants were given a refreshment.

C) AFTER THE SESSIONS.

Since the sessions were audio-taped, they were transcribed at the end of all the four sessions to detect themes that were common to all the groups. After the sessions, the moderator noted the common opinions expressed by the participants (Basch C., 1987) using the method described by Krueger (1988). These were then compared with the transcripts from the audio-tapes and the final common themes detected.

APPENDIX 4.3
SAMPLE SIZE CALCULATIONS.

If estimates of those using "modern" health services is to fall within 10% (not 10 percentage points) of the true proportion with 95% confidence, the sample size, N, for a simple random sample according to Lwanga and Lemeshow (1991) is given as:

$$N = Z^2 * P * (1-P)/(i^2 * P)$$

$$= Z^2 * (1 - P)/(i^2 * P)$$

Since the formula is for a simple random sample, one needs to multiply it by 2 (design effect) since cluster sampling is used for the household interview survey in this study. The formula then becomes:

$$N = 2 * Z^2 * (1 - P)/(i^2 * P)$$

Where:

Z = Normal deviate for given confidence limit. (For study, confidence limit is 95%, and the value of Z is 1.96).

P = Approximate range of use of "modern" health care obtained from previous studies.

i = Permissible error in the estimate of P, also known as the Precision.

The calculation of the sample size was done taking into account the standard errors for overall rates, within a 95% confidence interval of using a margin of error of 10%. The use of "modern" health services in rural Africa, using a two-week recall period, is reported by Belcher *et al* (1976) to be by about 27% of respondents in a household survey. Nchinda T.C (1977) in rural Cameroon found 53.3% of respondents using modern health services using a recall period of 4 weeks and a positive illness rate of 27.8% (i.e assumed to be 13.9% if recall period were two weeks).

Anticipated population proportion using Health Units (P) = 27%

Confidence level = 95%

Relative Precision (i) = 5% (of 27%)

$$\begin{aligned} \text{The sample size (N)} &= 2 * Z^2 * (1 - P)/(i^2 * P) \\ &= 2 * (1.96)^2 * (1 - 0.27)/(0.05^2 * 0.27) \\ &= 2 * 3.8416 * 0.73 / (0.0025 * 0.27) \\ &= 8039 \text{ persons.} \end{aligned}$$

Assuming that in the villages, each household had on the average 6 persons, the total number of households required was 1340.

APPENDIX 4.4
NDOP HEALTH DISTRICT

HOUSEHOLD INTERVIEW SURVEY (HIS) QUESTIONNAIRE

INSTRUCTIONS TO THE INTERVIEWER:

This is part of a subdivision-wide health survey. Follow the questions and instructions as they appear below. You should either tick, circle or fill in the blank spaces with the correct response from the respondent, as the case might be. What is UNDERLINED should be read carefully to the respondent. I count on your understanding. Thank you.

I. IDENTIFYING INFORMATION

Date of Interview:.....

Surname of Interviewer: _____ Initials:.....Code: [] []

I am doing a survey about the use of health care services in this subdivision. This is also being carried out in other villages of this subdivision. I will be very grateful if you can give me some information concerning yourself, other household members and the use of health services. Everything you say will be confidentially treated. Thank you for the co-operation.

001. Household/Questionnaire Number: HH.....

002. What is this village called: _____ Code

003. Which is the nearest health unit (name): _____ Code

004. Is this health unit a government or a private one? Gov't _____ Private
_____ (tick one).

005. How many minutes by foot from here to this health unit ____
Unknown _____

006. Do you know any traditional healer around here?
Yes ___ No ___

007. Have you ever seen him/her for treatment? Yes ___ No ___

Thank you for the information.. Can I speak to the Household head (if he were not the one answering above).I will like to get some information about those who usually live here in your house or who are staying with you now. I wish we start with the head of the household. Thank you.

II. GENERAL HOUSEHOLD INFORMATION

no 008	RESIDENTS/ VISITORS 009	RELATION TO HOUSEHOL D HEAD 010	AGE 011	SEX 012	RESIDENCE 013 014	
code num ber	Let me have the names of all who live(d) and are catered for by the same person in this household now and in the past 6 months.	what is his/her relationship to HHHead. Son - 1, Daugh - 2, Wife - 3 Mother - 4 Aunt - 5 Other - 6	How old is he/she	M =1 F =2	Does he/she live here usually. Yes 1 No 2 (²)	was he/she here last night Yes 1 No 2
01		HEAD				
02						
03						
04						
05						
06						
07						
08						
09						
10						

². "Live here usually" refers to one who spends at least 3 months per year in the household. This will therefore include people on holiday, away on business or in hospital as well as children in boarding schools.

N O 00 8	MARITAL STATUS 015	EDUCATIO N STATUS 016	EDUCATION STATUS 017	CLASS 018	OCCU PAT ION (³) 019	RELIG ION 020
code number	What is his/her marital status Married 1 Widowed 2 Divorced 3 Never married 4	Attended School now or in the past? Yes in past 1 Yes, Now 2 No, Never 3	Highest level attended Nursery 1 Primary 2 Secondary 3 High Sch 4 Universi 5 Post- Unvers 6	Total number years spent in school	What is your occupatio	Which is your church Cat:1 Bap:2 Pre:3 others:4
01						
02						
03						
04						
05						
06						
07						
08						
09						
10						

021. Are there any persons like children we might have forgotten ?

No (tick and continue); Yes (tick and put into table above).

022. Do you think some other people like servants, distant relatives and friends might have been forgotten?

No (tick and continue); Yes (tick and put into table above)

023. Do you think we might have forgotten someone who slept here last night? No
(tick and continue) Yes (tick and put into table above)

Thank you for the answers so far. I wish to ask a few questions concerning your house, your agricultural and other activities.

³. Indicate the name of the job performed by the named person. Put down exactly and clearly what has been given you by the respondent as his or her occupation.

024. How many rooms has this house?

Sleeping rooms: ... rooms

Sitting rooms:.....rooms

Toilet ... rooms

Bathroom ... rooms

Kitchen ... rooms

Other (specify).....

025. What are the walls of your house made of:

1 * Mud/Mud bricks _____

2 * Bamboo _____

3 * Cement/Stones _____

4 * Other (specify) _____

026 What is the floor of your house made of:

1 * Cement/Stones _____

2 * Tiles _____

3 * Earth _____

4 * Other (specify) _____

027 What is the roof of your house made of:

1 * Thatch _____

2 * Grass _____

3 * Galvanised iron sheets _____

4 * Other (specify) _____

028 What are the windows of your house made of:

- 1 * Fitted with glass _____
- 2 * Wooden window shutter _____
- 3 * No covering _____
- 4 * No windows. _____
- 5 * Other (specify) _____

029. Do you own this house?

Yes: ___(go to question 31)

No: ___(go to question 30, skip 31)

030. No: How much do you pay for it as rents/month ...Frs

031. Yes: How much would you have given it out if it were to be rented..... Frs
CFA/Month.

032. Do you or any member of your household have any of the following:

- * Bicycle: 1 Yes _____, 2 No _____
- * Radio: 1 Yes _____, 2 No _____
- * TV: 1 Yes _____, 2 No _____
- * Vehicle 1 Yes _____, 2 No _____
- * Mobylette 1 Yes _____, 2 No _____
- * Motorcycle 1 Yes _____, 2 No _____

033. How many of the things below does your household have?

ITEM	QUANTITY	ITEM	QUANTITY
CHICKEN	___		
PIG	___		
GOAT	___		
RICE FIELDS	___		
SHEEP	___		
CORNFIELDS	___		
COW	___		
COCOYAM FIELDS	___		

III. HISTORY OF HOUSEHOLD ILLNESS.

034. Have you or anyone in the house been sick within the last two weeks? Yes ___
(continue with question 036); No ___ (continue with question 035)
035. Have you or anyone in this house been sick within the past 6 months? Yes ___
(continue with question 036); No ___ (continue with question 106).
036. Who is the concerned [] [] (Put Code Number from table above AND invite the
concerned person to answer questions)
- (For questions 037 and following ones, If the concerned is an adult, let him answer
questions that follow, but if a child let mother or an adult in the house answer).**
037. Who is answering the questions: Himself/herself ____, Mother __, Father ____
other (specify) ___
038. Are you (Is he) still sick today:
NO ___ (continue with question 039)
Yes ___ (continue with 039 but skip question 040)
039. When did this illness start (date).....
040. When did it end (date)
041. For how many days have you been sick (days)
042. What are/were the symptoms of your illness (write in order given)
-
043. Did this illness prevent you (him) from carrying out (his) usual daily activities.
Yes ___ No. ___
044. For how many days were you (was he/she) unable to carry out your (his/her) usual
daily activities.....days

045. Did you (sick person) go to any health unit within past 2 weeks/6months (delete as
appropriate) for treatment. Yes ___ (continue with 046); No ___ (go to quest 047)
046. If YES, Where?: (Tick as appropriate).
- 1 Gov't H/C ___ (continue and complete Section IV FROM QUEST 048)
 - 2 Private H/C ___ (Continue, and complete Section IV FROM QUEST 048)
 - 3 Gov't Hospital ___ (continue and complete Section V FROM QUEST 066)
 - 4 Private Hospital ___ (continue and complete Section V FROM QUEST 066)
 - 5 Traditional. Healer ___ (continue and complete Section VI QUEST 083)
047. If NO, what did you (he) do?
- 1 Self-care ___ (continue and complete Section VII FROM QUEST 095)
 - 2 No care at all ___ (continue and complete Section VIII FROM QUEST 105)

IV. VISIT MADE TO A GOVERNMENT OR PRIVATE HEALTH CENTRE.

QUESTIONNAIRE NUMBER: _____ [] [] [] []

048. Name of H/Centre: _____ Code: [] []
049. How far is centre from here kilometres.
050. How long did it take to reach centre..... Minutes.
051. How long had you to wait before seeing the nurse/docMinutes
052. How long were you with the Nurse/doctor.... minutes.
053. How long were you with the propharmacist.....Minutes.
054. Have you been hospitalized within the past 2 weeks in health centre? Yes ___
No ___
055. How much did it cost you to go for the treatment: (Read to respondent the following).
- Transport one way only Frs CFA.
Consultation Fees Frs CFA.
Laboratory Fees Frs CFA.
Hospital fees Frs CFA.
Other fees (specify) _____ Frs CFA.
056. Were you prescribed any drugs?
Yes _____ (continue with question 057)
No _____ (go to question 059).

057. Where did you get the drugs prescribed from? (tick the correct situation)
- 1 * None of the prescribed drugs given or bought ___
 - 2 * Some of the drugs bought from (pro)pharmacy ___
 - 3 * Some of the drugs were bought from (pro)pharmacy, while some were given to me free ___
 - 4 * Some were sold to me by the consulting nurse ___
 - 5 * All drugs were bought from (pro)pharmacy ___
 - 6 * All drugs were bought from somewhere else ___
 - 7 * Some were bought from propharmacy and others from somewhere else _____
 - 8 other (Specify) _____
058. How much did the drugs cost you in All Frs CFA.
059. Is there any extra COST from that given above not mentioned?
Yes _____ (continue with question 060)
No _____ (go to question 061)
060. How much extra _____ frs.
061. Concerning all the treatment you have undergone for this illness within the past 2 weeks/6months (delete as appropriate), where did you get the money necessary for this treatment?
- 1 * From Savings _____
 - 2 * Selling of belongings _____
 - 3 * Borrowing from friends _____
 - 4 * Borrowing from a relative _____
 - 5 * Given by somebody else _____
 - 6 * Pounding of belongings _____
 - 7 * Paid in Kind, not cash _____

062. How many times have you been to this unit with the same illness within the past 2weeks/6months?.....times

063. What attracted you to this health centre?

064. Why did you not go to a traditional healer.

065. Why did you not go to a Mission HC/Government HC? (strike out the one respondent used for illness episode).

V. VISIT TO HOSPITAL

QUESTIONNAIRE NUMBER: _____

066. Name of Hospital: _____ Code: _____

067. Status: Public Private: (tick correct one)

068. Were you referred here? Yes No

069. How far is hospital from here kilometres.

070. How long did it take to reach hospital.... Minutes.

071. How long had you to wait before seeing the nurse/doc...Mn

072. How long were you with the Nurse/doctor ... minutes.

073. How long were you with the pharmacist.... Minutes.

074. How much did it cost you to go for the treatment: (Read out to the respondents the following):

Transport one way only..... Frs CFA.

Consultation Fees Frs CFA.

Laboratory Fees Frs CFA.

Hospitalization feesfrs Cfa.

Other fees (specify) _____,..... Frs CFA.

075. were any drugs prescribed?

Yes _____ (continue with question 076)

No _____ (go to question 078)

076. Did you receive all the drugs prescribed? (CIRCLE the correct situation)

- 1 * None of the prescribed drugs received _____
- 2 * Some of the drugs were bought from pharmacy _____
- 3 * Some of the drugs were bought from pharmacy; while some were given me free _____
- 4 * Some were sold to me by the consulting nurse _____
- 5 * All drugs were bought from pharmacy _____
- 6 * Some bought from pharmacy, while others from somewhere else _____
- 7 * other (specify) _____

077. How much did the drugs cost you in All Frs CFA.
078. How many times have you been to this unit with the same illness within the past 2 weeks/6 months (delete as appropriate)?..... times.
079. Concerning all the treatment you have undergone for this illness within the past 2 weeks, where did you get the money necessary for this treatment?
- 1 * From Savings _____
 - 2 * Selling of belongings _____
 - 3 * Borrowing from friends _____
 - 4 * Borrowing from a relative _____
 - 5 * Given by somebody else _____
 - 6 * Pounding of belongings _____
 - 7 * Paid in Kind, not cash _____
080. What attracted you to this hospital?
- _____
081. Why did you not go to a traditional healer.
- _____
082. Why did you not go to a Mission/Government Hospital? (strike out the one respondent used).
- _____

VI. VISIT TO A TRADITIONAL HEALER.

QUESTIONNAIRE NUMBER _____

083. How far away is he/she from here:.... Kilometres.
084. How long did it take to reach?..... Minutes.
085. How long had you to wait before seeing the doctor .. Mn
086. How long were you with the doctor ... minutes..
087. How much transport cost one way only to go there....
088. Did you have to pay anything in kind or cash to the healer? Yes _____ (continue with quest 089)
- No _____ (Continue with question 089)
089. How much did you spend for the following: (Read out to respondent)
- Consultation Fees Frs CFA.
- Treatment Fees Frs CFA.
- Other fees (specify) _____, Frs CFA.
- Payment was in KIND _____
- (specify worth in frs cfa) _____
090. Concerning all the treatment you have undergone for this illness within the past 2 weeks/6 months, where did you get the money necessary for this treatment?
- 1 * From Savings _____
 - 2 * Selling of belongings _____
 - 3 * Borrowing from friends _____
 - 4 * Borrowing from a relative _____
 - 5 * Given by somebody else _____
 - 6 * Pounding of belongings _____
 - 7 * Paid in Kind, not cash _____

091. How many times have you been to see healer with the same illness within the past 2weeks/6months?.....times.

092. Why did you chose to see a traditional healer:

093. Why did you not go to a Mission Hospital?

094. Why did you not go to a Government Hospital?

VII. SELF-CARE.

QUESTIONNAIRE NUMBER

095. Did you use traditional medicine? Yes No

096. Did you have to buy any other drugs? Yes No

097. From where did you buy these drugs:

- 1 Pharmacy 2 Patent Store
3 Hawkers 4 Market

098. Who advised you on which medicine to buy?

- 1 A doctor 2 A Nurse
3 A Pharmacist 4 A relative/Friend
5 Other (specify)

099. How much did the drugs cost you _____ cfa frs

100. How much have you so far spent for this illness excluding the expenditure for drugs above? _____ Frs

101. Concerning all the treatment you have undergone for this illness within the past 2 weeks/6months, where did you get the money necessary for this treatment?

- 1 * From Savings
2 * Selling of belongings
3 * Borrowing from friends
4 * Borrowing from a relative
5 * Given by somebody else
6 * Pounding of belongings
7 * Paid in Kind, not cash

102. Why did you not go to a traditional healer?

103. Why did you not go to a Mission Health unit

104. Why did you not go to a Government Health unit?

VIII. VISIT TO OR BY OTHERS

105. If you did not go to a health unit, did not visit a traditional healer, did not take any drugs on your own, which type of person treated you?

- | | | | | | | |
|---|--------------------|-------|-------|-------|------|-------|
| 1 | Private doctor | _____ | Where | _____ | COST | _____ |
| 2 | Nurse | _____ | where | _____ | COST | _____ |
| 3 | Midwife | _____ | Where | _____ | COST | _____ |
| 4 | Traditional healer | _____ | where | _____ | COST | _____ |
| 5 | Other (specify) | _____ | Where | _____ | COST | _____ |

IX. ATTITUDES OF THE HOUSEHOLD HEAD

106. Consider the payments you have just talked about above. Has these types of payment prevented any member of your household or you from seeking care when sick within the last year?

- 1 * Never _____ 2 * Sometimes _____
3 * Always _____

107. Let us suppose now that the government decides to introduce consultation fees in government health units and the fees are used to purchase basic things like soap, kerosine, alcohol etc., necessary for the cleaning and dressing of wounds, giving injections etc. Which situation do you prefer?

- 1 Fee introduction _____ (go to question 108)
2 Present situation with no fees _____ (go to 109)

108. If you prefer payments of fees, what is the maximum amount of money per visit excluding drugs that you propose to be instituted?..... Frs CFA.

109. Let us suppose again that government now decides the families should buy a family card for about 2000 Frs Cfa per year. It is said that those who buy the card will have to pay only half of the treatment cost whenever a family member consults in the government health unit. For example, if you consult today and the cost is 800 frs cfa, you will only pay 400 frs cfa. This excludes the cost of drugs.

Will you like to buy such a card for your family?

Yes: _____ No: _____

110. Why

Thank you for the answers so far, I wish to ask a few questions concerning the financial situation of your household. I wish to remind you that any information given will be treated confidentially.

X. FINANCIAL SITUATION OF HOUSEHOLD.

111. How many people in this house are employed and earn a regular monthly salary?
0, 1, 2, 3, 4, 5. (Circle correct number). [If zero go to question 114]
112. What was their total income last month:..... Frs
113. Total Family allowance received: Frs CFA.
114. Those not in regular employment, how much did they bring in as income last month?: ... Frs CFA.
115. How much money did you have last year from the sales of the following:
- * Rice Frs cfa orbags paddy
 - * Plantains Frs Cfabunches
 - * Garri/cassava Frs Cfa
 - * Corn Frs Cfatins
 - * Fish Frs Cfa orsticks
 - * Goats/Sheep/Cows.....Frs Cfa
 - * CoffeeFrs cfabags
 - * CocoyamsFrs CFAbuckets

116. How much worth of what you produced did you eat within last week in your household?

ITEM	QUANTITY	ITEM	QUANTITY
RICE		COCOYAMS	
FISH			
CORN			
MEAT			
PLANTAINS			

117. How much money came into the household as gifts from outside last year? eg from a son or daughter working outside the household, from pension etc.

- * From son/daughter/in-law/dowry Frs cfa
- * Pension Frs cfa
- * Other government sources Frs cfa
- * Scholarship(s) for # childfrs cfa
- * Other sourcesfrs cfa

You might have also spent some money within the past year, could you kindly let me have this.

118. How much did your household spend on the following within the past year.

- * School feesFrs Cfa
- * PTA Levies Frs Cfa
- * Books/Uniforms Frs Cfa
- * Boarding fees Frs Cfa
- * Transport to school Frs Cfa
- * Pocket allowance Frs Cfa
- * Taxes paid in ALL Frs Cfa
- * Clearing of farm Frs Cfa
- * Buying all seeds Frs Cfa
- * Bird watching in farm Frs Cfa
- * Processing riceFrs cfa
- * Money sent out (Not included above) frs Cfa

119. Are there other expenditures that have not been mentioned :

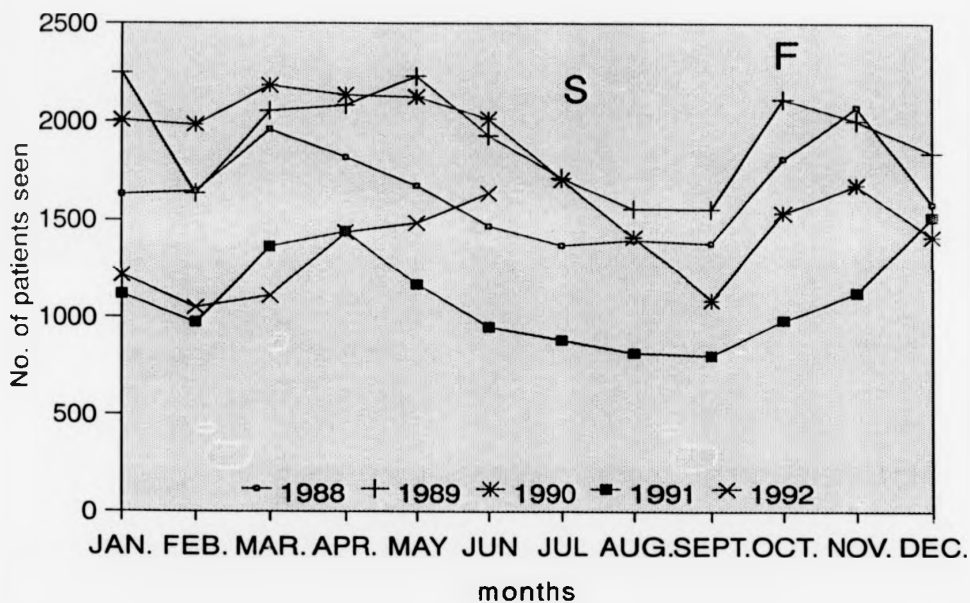
Yes _____, No _____

120. If YES; What is the amountFrs CFA.

Thank you for all the time. I am sorry for any inconveniences. The information you have given me will be confidentially treated.

**APPENDIX 4.5
UTILIZATION OF HEALTH CENTRES IN NDOP HEALTH DISTRICT
FROM REGISTERS AND MONTHLY REPORTS (1988 - 1992) .**

As indicated by the figure, there has been a general increase of consultations in the health centres of this health district since 1988. There is also a tendency for the number of consultations to vary with the seasons of the year. The study was therefore done during one of the declining phases of the consultation cycle represented by S for start and F for finish in the figure below.



APPENDIX 4.6
A HEALTH DISTRICT
HEALTH FACILITY SURVEY (HFS): STAFF QUESTIONNAIRE
I. BACKGROUND INFORMATION

This is part of a subdivision-wide health facility survey. This is also being carried out in other Health Units of this subdivision. The aim of this is to find out how the health centres differ in their abilities to provide care to the patients in the different health areas. Follow the questions and instructions as they appear. Write down the answers clearly and honestly in the spaces provided. You can add extra sheets if **ABSOLUTELY** necessary. All what is written will be treated confidentially. I count on your understanding. Thank you.

II. IDENTIFYING INFORMATION

- Date of Completion _____
 01. Questionnaire Number: HC
 02. Name of Respondent _____
 03. Qualification of respondent _____
 04. Name of Health Unit: _____
 05. Status of health Unit: Public Private
 06. Date officially opened: _____

III. STAFFING SITUATION.

NO	PROFESSI ONAL CATEGOR Y (07)	NU MB ER (08)	SALAR Y/MON TH/CA TEG (09)	MONTHL Y ALLOWA N (10)
01				
02				
03				
04				
05				

IV. OPERATING COST

(What was spent last year for the things that follow).

COST ITEM	BUDGET ED AMOUNT (011)	AMOUNT USED (012)
Travel/transport		
Drugs/Vaccine		
Fuel/cleaning/statione ry		
per diems/accom:Training		
Buildings ⁴		
Fridges		
Sterilizers		
Beds		
Examination Beds		

⁴ The cost of the building per year was estimated as being equal to "Area X Cost per square metre/expected life span". The cost per square metre was obtained from the Provincial service of Town Planning and construction.

APPENDIX 4.7

ORGANIZATION OF FIELDWORK

i) Initial action taken before fieldwork began.

The District Medical Officer (DMO) in charge of the health district of Ndop wrote letters to the various health centre chiefs and their health committees informing them of the impending household interview survey. The health committee members in turn informed the local authorities and the members of the communities. The health centres and leaders of villages served by them were visited by the author before the survey was started. The objectives of the study were explained to them. Informal interviews were held with the village leaders and health centre staff to find out if anything like an epidemic that might have necessitated a massive influx to the health centres occurred in the health district in the recent past. Following the letter from the Medical Officer, the health committees together with the chief of centres recruited people who had attained secondary school level to be trained as interviewers. Considering the questions for the household survey, it was thought that only people who had attained secondary school level could read and understand to be able to put it clearly across to people in the villages.

The village health committees also recruited those who eventually represented their health areas in the focus group discussions. The focus group discussions were carried out before the household interview survey since the results of the focus group discussions were used in completing the design of the HIS questionnaire. The study period is represented by " S[tart] and F[inish]" in appendix 4.5.

ii) Approaching the communities in the different villages.

After informal introductory visits, official visits were paid to village leaders, local leaders and political authorities in the company of the District Medical Officer or the primary health care supervisor. During these visits, concepts, sampling procedures and methods of the study were explained with the aim of having their approval and support. The authorities were reassured that information collected will only be used for the study and for nothing else. The health care providers were also visited and discussions as to how the study will improve health care delivery in their area were held.

The village leaders were told that the study aimed at collecting information from a number of households about the demand and expenditures made for health services. They were also informed that the information collected was to be shared with those taking decisions at all levels of the health sector.

It was stressed that the study had nothing to do with the government. This contact was necessary to encourage the support and co-operation of the communities concerned. The support and co-operation needed from the authorities was in the form of informing the community members to actively participate. At the same time, it was used to gauge the level of interest they had in a subject as the one being studied.

The interviewers who had been chosen by the health committee returned to their villages after the training. The health committees and the village heads were informed of their return by letters. For a period of two weeks after the training, the interviewer with the help of the health committee members sensitized the population concerning the survey of households. Announcements were made in market places and in churches about the survey timetable in the various quarters of the different villages.

Concerning the study proper, the interviewer informed the quarter head of the quarter in the village in which he intended to work a few days before. On arrival in the quarter, the quarter head was informed before the interviewer started his work. Since the interviewer was someone from the area of the study, it was absolutely unnecessary to get a guide who might have made things a little difficult for the respondents. For example, some respondents might not have liked to talk about their income in the presence of a third party.

APPENDIX 4.8

ESTIMATION OF THE COST OF AN OUTPATIENT SERVICE IN PUBLIC HEALTH CENTRES: UNIT COST CALCULATION (1991 financial year).

METHODOLOGY FOR COST ANALYSIS.

The methodology applied recently in Zambia (Bennett *et al.* 1990) and in Indonesia (Lerman *et al.*, 1985) rather than the statistical one is chosen because the aim of cost analysis in this study is to eventually calculate the unit cost of resources used for an outpatient service in health centres. To be able to provide a rough indication of the size of private contribution that the population might be called upon to make, the unit cost of an outpatient service in a government health unit was made. This is also done with the objective of using the unit cost of an outpatient service for simulation and eventual cost-sharing.

Firstly, all the health centre expenditures for an acceptable outpatient service (i.e. one that is provided by a three-year professionally trained staff⁵) was estimated in the following manner in three health centres:

Capital expenditure:

Consideration was given to the cost of buildings, vehicles and equipment. The cost was obtained from documents at the Provincial health and contract offices, from district health offices and from those documents available in the health centre. For buildings and imported equipment, it was difficult to get the cost from either the provincial or district health offices. Use was then made of the Provincial contract office from where the official cost of building per square meter was obtained. As concerns the imported equipment, the basic equipment cost estimates from catalogues were used (IDA, 1992). The documents indicated the original value of the building or equipment. A simple straight-line depreciation method was used to provide the current real costs.

The recurrent expenditure:

This refers to the maintenance expenditure for the buildings and equipment, and other activities actually carried out like the cost of training, transport, cost of supplies (drugs, vaccines and laboratory reagents) and utilities (electricity, fuel, water etc). The salary of the personnel was also included in this category. The required information was

⁵.Three health centres were found in the district to fulfil this condition fully. There were others who partially fulfilled the condition - having the staff who had not been in place for a sufficiently long time to have any impact in the community.

obtained from the chief of centre, from the district medical officer and from the Provincial health office in charge of personnel. The expenditure for expendable supplies like drugs, stationary was obtained from documents in the health centres or from the central drug supply office at the Provincial headquarters or from catalogues if the costs were not available in the above places. Gross salaries of the staff were obtained from their most recent payrolls or from budget cost estimates made by the administrative office in charge of budgets at the provincial level.

Procedure for the cost analysis.

- A) The total capital and recurrent expenditure in the health centre is assumed to relate to only the outpatient services without the inclusion of preventive services. This is ascertain and attributed to outpatient care.
- B) Average expenditure for drugs per patient is calculated using the total cost of drugs bought by patients within one year divided by the number of patients received in the propharmacy.
- C) The average cost per outpatient is obtained by adding the salary part of the expenditure to the recurrent and capital part, divided by the total number of Outpatient (OP) treated within the year. $[(A + B/\text{total OP cases within year})]$.
- D) The total expenditure per outpatient is obtained by adding the average drug cost per patient to the average cost per outpatient.

As an example. The table below presents the unit cost of an outpatient service in different scenarios (⁶) within the 1991 financial year. The unit cost of an outpatient service, an indicator of efficiency, varies with the number of staff and the number of patients treated. The variation noticed between the three representative health centres suggest there can be a possibility for efficiency improvement. However, one will need to look into things like the staffing situation, drug usage, patient mix, quality of care, the state of equipments and buildings of the health centres and their administrative practices.

⁶ Government here refers to the Ministry of Public health, donors and other government departments.

INPUTS	BAMESSING	BABESSI	B'KUMBAT
<u>CAPITAL</u>			
BUILDINGS	149333.3	97777.8	200000.0
EQUIPMENT	14246.0	11784.9	14007.1
VEHICLE/MOTORCYCLE	25000.0	30833.3	30833.3
<u>SUB-TOTAL I</u>	188579.3	140396.0	244840.4
<u>RECURRENT</u>			
PERSONNEL	336808.3	498358.0	649224.3
TRAINING	2727.1	2254.2	375
DRUGS	52041.7	95738.3	106240.8
VACCINES	13511.8	19827.2	14729.9
LAB. REAGENTS	4958.3	13716.7	19333.3
VEHICLE MAINT	15000.0	20000.0	20000.0
OVERHEADS ⁷	79670.8	32500.0	17500
<u>SUB-TOTAL II</u>	504718.0	682394.4	827403.3
<u>GRAND TOTAL</u>	693297.3	822790.4	1072243.7
NO. PATIENTS/MONTH	148	159	216
ALL COST/PATIENT ⁸	4684.4	5174.8	4964.1
REC. COST/PATIENT ⁹	3410.3	4291.8	3830.6
REC.COST2/PATIENT ¹⁰	1134.5	1157.5	824.9
RECURR/CAPITAL	0.3736	0.2057	0.2959

⁷ Overheads include stationery, water, electricity, maintenance cost of buildings and operating cost of refrigerators.

⁸ All cost here refers to a situation where the government does not take charge of the capital expenditure and the salaries of the staff. This is simply the total cost within a time period divided by the number of patients seen within this same period.

⁹ Reference is here being made to a situation where the government takes care of only the capital expenditure and leaves the salary of the staff for the community.

¹⁰ In this case, the recurrent cost2 refers to the recurrent cost less the staff salaries. In this situation the recurrent cost due to be covered (rec.cost2/patient) by the community members by way of community financing varies from 824 to 1158 francs cfa for the three health centres [On average the cost to be recovered is 1039 (one thousand and thirty eight) francs cfa including the payments of drugs].

APPENDIX 4.9

PRACTICAL PROBLEMS ENCOUNTERED DURING THE FIELD STUDY.

PROBLEMS RELATED TO THE POLITICAL INSTABILITY IN CAMEROON

i) Unco-operative nature of some respondents.

Since 1990, there has been political unrest in the country resulting in the death of many people in both urban and rural areas of most provinces. This was a direct result of the outcry for multi-party politics. In 1992, there was a call for a Presidential elections, whose results were highly contested by the opposition parties and particularly the one whose headquarters was located in the North West Province. This was followed by more violence. Even in the Ndop health district, there was rioting, burning of houses and killing of people.

At the time of the study, there was Civil disobedience, code named "Ghost town", initiated by the opposition parties. During this time people were not supposed to pay their taxes, electricity or water bills. Towards the end of the study, the government declared a state of emergency in the whole of the North West Province. It became difficult to move about freely without being harassed by the forces of law and order. In some of the villages of the health district under study, there has been in the past maltreatment of many community members by the forces of law and order. There was much anger directed at the government and this might have affected the use of public health centres in favour of other providers.

During the study period, several problems attributed to the political situation of the country were faced. During the pilot phase, it was realised that many people were hostile towards the government of the day and consequently avoided anything related to the government. Firstly, I remember very well the case of an old man who had been forcefully retired. When we came to his compound, he said "I was forcefully retired by this government and I am not prepared to answer any of your questions". There was another case of a man who said "we have been for two months without a salary but the government is able to waste money on paper, I am not answering any questions". The people were all reassured that the study was in no way connected to the government.

Secondly, because people had not paid their taxes probably because of the civil disobedience called by the opposition parties some time before the study, most people were very suspicious and could not immediately release information on their income or even mention their household belongings like chicken, cows, radios etc. However, with much discussions and explanation, the information was obtained from nearly everyone who was interviewed.

Because of the above situations, the interviewers had to work more on their method of approach to the community and in their introduction they had to give their name and that of their parents (known in the villages), explain the purpose of the study and make it clear to the population that it was not being sponsored by government and that the government had no relationship with the study.

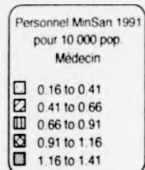
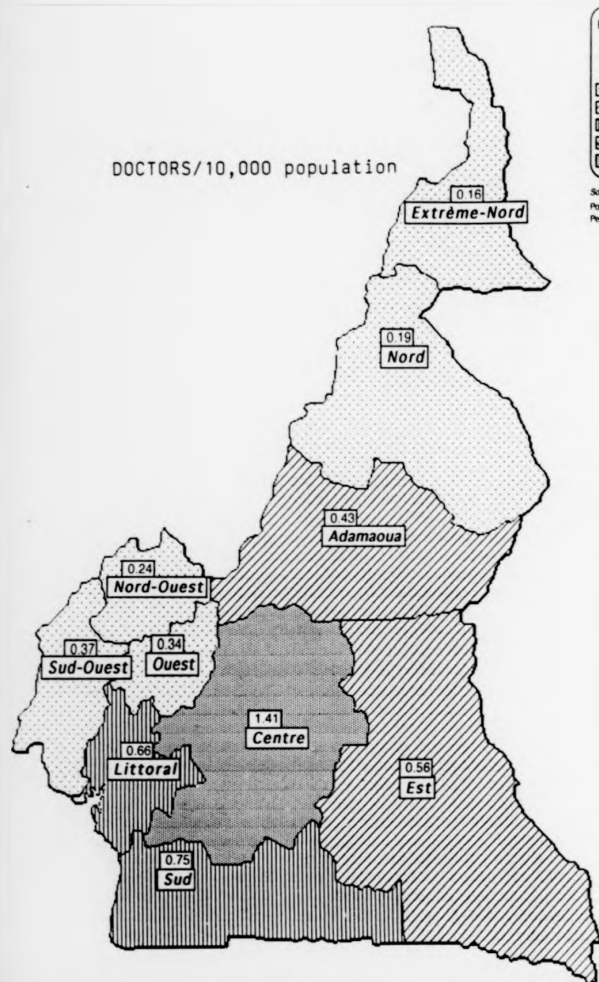
ii) Unattained sample size.

Still as a direct result of the political problems encountered in the field, it was impossible to collect the required sample size. In one of the villages, the interviewer was driven out in spite of the author's efforts to get the co-operation of the villagers through the village health committee and the village head. It was rumoured that this village had suffered from beatings from the forces of law and order and has consequently become hostile to anything which was thought to be associated with the government.

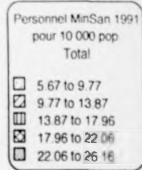
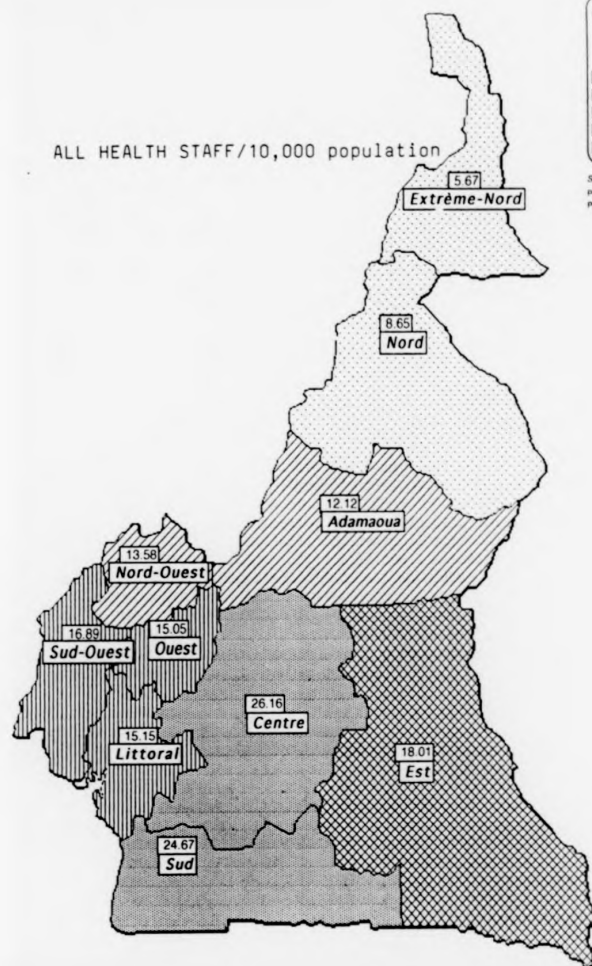
In another village which was served by a private mission health unit, it was impossible to get the co-operation of the staff and of course the villagers. The mission has been among those who do not seem to support the "interference" of the community in what they see as their field. It was thought therefore that the study was a way of getting to understand their system to get the community into their affairs.

APPENDIX 5.1

HEALTH STAFF DISTRIBUTION/10000 POPULATION/PROVINCE.



Source des données:
Population: Min/Pop (15 Mai 1991)
Personnel MinSan: Recensement 1991/92



Source des données:
Population: Min/Pop (15 Mai 1991)
Personnel MinSan: Recensement 1991/92

APPENDIX 5.2

ORGANISATIONAL STRUCTURE OF THE NDOP HEALTH DISTRICT.

Concerning the organizational structure of the health district, it is represented as a three-tier structure, ten community health posts at the bottom, ten health centres in nearly all health areas in the middle and one referral hospital, the subdivisional hospital at the top. Ndop health district is managed by a district Medical Officer leading a team of two medical officers, 16 nurses, 9 midwives, 32 nurse aids, and 14 laboratory technicians. The few health officers under the jurisdiction of the district medical officer are attached to the council. The Ministry of Public health describes the levels in the Ndop health district as follows.

HEALTH POST LEVEL: There are 10 community health posts with 12 community health workers (CHW) and 9 traditional birth attendants. The CHW are trained by the MOH in simple curative and preventive practices and the training is partly paid for by the community. In principle, they are supposed to provide care to about 3000 - 5000 population. They are selected and remunerated entirely by the community.

HEALTH CENTRE LEVEL: This is the first level of the national health care delivery system with government paid staffs - Nurse, midwife, nurse aid, laboratory technician etc. There are ten of them providing maternal and child care, obstetric and outpatient care, limited inpatient care for observation before transfer to the next level. Two of the ten are owned by the mission. Each of these health centres serves a population of about 15,000 and has at least a Nurse, a Health Officer, a propharmacy attendant, a Nursing aid or a Midwife.

HOSPITAL LEVEL: In addition to the staff of the health centre level ⁽¹¹⁾, there are two Medical officer, one of whom is the team leader. The level is supposed to organize health care in the district and provides, in addition to the activities carried out in health centres, in-patient and obstetric care, disease control. The hospital serves about 150,000 population.

TRADITIONAL HEALERS: It is difficult to give the exact number of traditional healers in the district but what is clear is the fact that many people are involved in traditional healing (herbalist, bone setter, magician, etc).

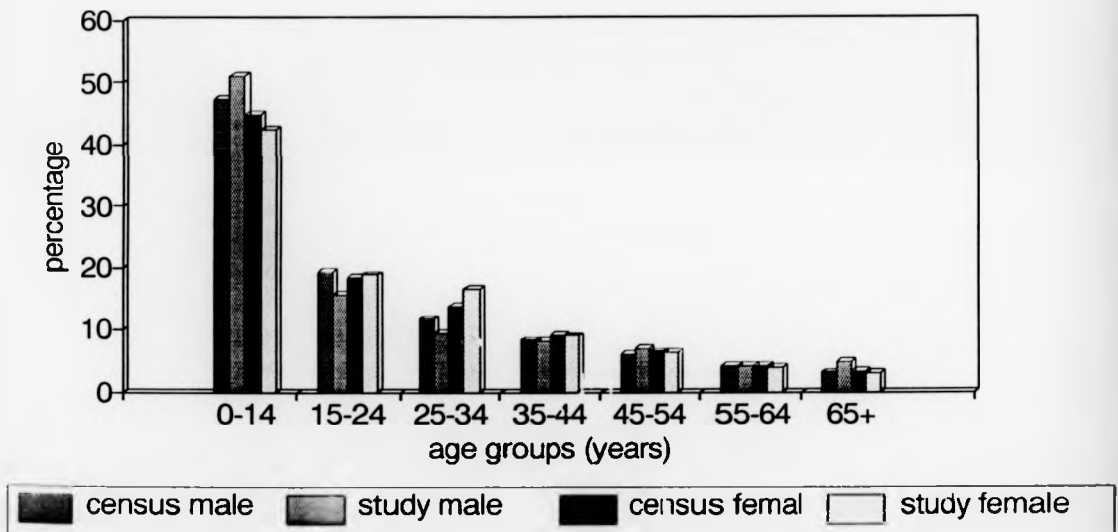
¹¹ The emphasis placed on hospital care and the urban bias is very visible in Ndop. Of the 16 nurses in the district, 12 were in hospital and only 4 were for the 8 government health centres. 21 of the 32 nurse aids, 12 of the 16 nurses, 5 of the 9 midwives and 6 of the 14 laboratory technicians were reserved for the hospital and the rest shared between the 8 public health centres. The staff of the two mission health centres in the district were not taken into consideration.

APPENDIX 6.1

REPRESENTATIVENESS OF THE STUDY POPULATION

The age distribution indicates that 46.6% were below 15 years of age. The average age is 22.08 years for the whole sample while that for only the adults is 37.23 years. 50.3% of the surveyed population were females and 49.7% were males giving a sex ratio which is slightly different to that from the national census of 100 Females: 95.9 Males. The above data is in line with the findings of the last national census which indicated a national average age of 22 years, 46.4% of the population below 15 years of age (Ministry of Planning and Regional Development, 1987). The sex and age distributions of the studied population compared to that of the 1987 national census is presented in Figure below.

(STUDIED POP. COMPARED TO 1987 CENSUS)

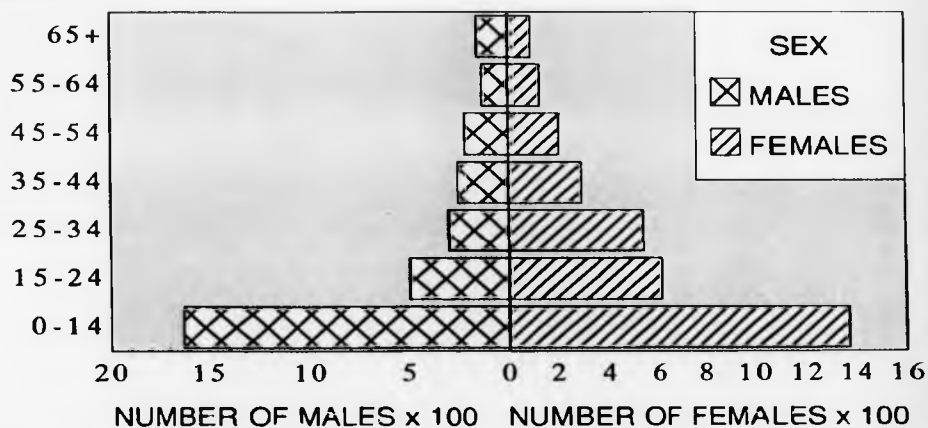


APPENDIX 6.2

AGE-SEX DISTRIBUTION OF SURVEYED POPULATION.

There are generally more females than males in all the age groups except for the 0 - 14 years age group where there is an equality of sexes. The age-sex pyramid of only the studied population is presented in figure below is broad at the base (high birth rates) and narrow above the base (high but declining death rates).

AGE GROUPS



MALES	1.55	1.33	2.21	2.59	3.04	4.98	16.28
FEMALES	0.93	1.3	2.06	2.94	5.38	6.1	13.72

APPENDIX 6.3

DISTRIBUTION OF HOUSEHOLD SIZE.

HOUSEHOLD SIZE	NUMBER WITH NO ILLNESS	NUMBER WITH ILLNESS	TOTAL SURVEYED
1 - 3	81 (16.5)	99 (16.4)	180 (16.5)
4 - 6	234 (47.8)	282 (46.8)	516 (47.2)
7 - 9	106 (21.6)	132 (21.9)	238 (21.8)
> = 10	69 (14.1)	90 (14.9)	159 (14.5)
TOTAL	490 (100)	603 (100)	1093 (100)

There is no significant difference between the two groups ($X^2 = 0.20$, $P = 0.9778$, $df = 3$).

APPENDIX 6.4

FREQUENCY DISTRIBUTION OF YEARS OF SCHOOLING BY SEX.

LEVEL OF SCHOOL	MALE	FEMALE	TOTAL
NONE. (Row %) (Column %)	886 (37.7) (32.9)	1466 (62.3) (53.2)	2352 (100) (43.2)
PRIMARY LEVEL	1464 (56.4) (54.4)	1131 (43.6) (41.0)	2595 (100) (47.6)
SECONDARY LEVEL	321 (66.9) (11.9)	159 (33.1) (5.8)	480 (100) (8.8)
UNIVERSITY LEVEL	19 (95.0) (0.7)	1 (5.0) (0.04)	20 (100) (0.4)
TOTAL	2690 (49.4) (100)	2757 (50.6) (100)	5447 (100)

There is a high male literacy when compared with that of the females and the difference is statistically significant ($X^2 = 227.27$ $P < 0.00005$, $df = 1$).

APPENDIX 6.5

OWNERSHIP OF LIVESTOCK BY SOCIO-ECONOMIC GROUP.

Analysis of the ownership of livestock (productive assets) by socio-economic grouping as determined by the methodology indicated in chapter 4 is presented in Tables below.

The livestock has an important role to play in a rural environment with its economy which is not completely monetarized. In case of sudden illness which needs that expenditures be made, the household can quickly sell one of its available livestock. The average number of livestock increases with the increase of socio-economic status i.e the wealthiest have on the average more livestock than the poorest respondents. The wealthiest stand a better chance of having the livestock which can then be sold compared to the poor. If it is not possible to sell or it is not the wish of the household to sell, the livestock can be used as guarantee against the loan or it can be pawned as happens in most cases.

AVERAGE NUMBER OF LIVESTOCK BY SOCIO-ECONOMIC GROUP.

Variable	Mean	std. dev	Min	max	number
1. Poorest 25% of Residents (Lowest Socio-economic group).					
Chicken	5.38	7.16	0	50	151
Goat	1.74	2.20	0	8	151
Sheep	0.26	1.06	0	7	151
Cow	0.13	1.55	0	19	151
Pig	1.12	1.57	0	8	151
2. Lowest middle 25% of residents					
Chicken	6.40	6.03	0	30	151
Goat	2.21	2.97	0	16	151
Sheep	0.37	1.04	0	6	151
Cow	0.09	1.14	0	14	151
Pig	1.53	1.89	0	11	151

AVERAGE NUMBER OF LIVESTOCK BY SOCIO-ECONOMIC GROUP (Continued).

3. Upper middle 25% of residents

Chicken	10.17	14.51	0	99	150
Goat	4.25	9.02	0	98	150
Sheep	0.90	4.28	0	50	150
Cow	0.12	1.24	0	15	150
Pig	1.33	1.99	0	10	150

4. Wealthiest 25% of residents (highest socio-economic group)

Chicken	13.60	13.73		70	151
Goat	4.94	11.49		95	151
Sheep	1.40	6.96		80	151
Cow	0.44	3.00		35	151
Pig	0.85	2.14		15	151

APPENDIX 6.6

OWNERSHIP OF A RADIO AND/OR TELEVISION.

OWNER	NO ILLNESS				ILLNESS REPORTED			
	RADIO SET		TELEVISION		RADIO SET		TELEVISION	
	FREQ	%	FREQ	%	FREQ	%	FREQ	%
YES	364	74.3	24	4.9	478	79.3	21	3.5
NO	126	25.7	466	95.1	125	20.7	582	96.5
TOTAL	490	100	490	100	603	100	603	100

There is no significance difference between the ownership of a radio set by those households reporting an illness and those not ($P = 0.05135$, $X^2 = 3.9$) as well as between the ownership of a television set by the same groups ($P = 0.2415$, $X^2 = 1.37$).

APPENDIX 6.7

SYMPTOMS REPORTED (SYSTEMS AFFECTED).

The table below indicates the causes of morbidity as indicated during the household interview survey by the household heads.

CATEGORIES OF FREQUENTLY REPORTED SYMPTOMS / SYSTEMS AFFECTED	FREQ	PERCENT
FEVER-MALARIA	240	39.8
CARDIO-RESPIRATORY	91	15.1
MEASLES	86	14.3
DIGESTIVE SYSTEM	83	13.8
MUSCULO-SKELETAL	67	11.1
NERVOUS SYSTEM	11	1.8
EYE	8	1.3
GENITO-URINARY SYS.	8	1.3
OTHER	5	0.8
EAR-NOSE-THROAT	4	0.7
TOTAL	603	100

APPENDIX 6.8

ILLNESS PREVALENCE ¹² AND UTILIZATION RATES BY AGE GROUPS.

AGE GROUPS (YRS)	SURVEY POPULA.	NUMBER ILL (Prev/100)	No. USING ALL PROFESSIONALS (Util/100) ¹³	NO. USING only "MODERN" Util/100 ¹⁴
[1]	[2]	[3]	[4]	[5]
15 - 24	1108	29 (2.6)	22 (2.0)	16 (1.4)
25 - 34	842	140 (16.6)	104 (12.4)	83 (9.9)
35 - 44	553	153 (27.7)	117 (21.2)	101 (18.3)
45 - 54	427	128 (30.0)	82 (20.1)	70 (16.4)
55 - 64	263	75 (28.5)	48 (18.3)	42 (16.0)
>= 65	248	78 (31.5)	46 (18.5)	39 (15.7)
TOTAL	3441	603 (17.6)	419 (12.2)	351 (10.2)

¹² Numbers in brackets (X) represent the prevalence and utilization rates of the age group concerned. The other numbers represent the frequency distribution.

¹³ Utilization rate per 100 persons (INCLUDES all those who sought care from professionals including traditional healers). Numbers in bracket (X) represent the utilization rate per 100 persons reporting an illness. Assumption is that only those ill would seek health care.

¹⁴ Utilization rate per 100 persons (EXCLUDES all those who sought care from traditional healers). Rate based on assumption that everyone in an age group, not just those who reported an illness, were free to seek health care from any provider of formal health care.

APPENDIX 6.9

VALUATION OF THE OPPORTUNITY COST OF TIME

The concept of opportunity cost of time

The opportunity cost of time is the monetary value that the patient could receive if he were to employ it in its next most productive use like farming corn or working in the rice farm. The calculation of the monetary value is done taking into considerations the imputed prices based on several assumptions. This study is concerned with only the adults aged 15 years and above.

The valuation of time especially in rural area has been very controversial. There was difficulty in valuing the household members' time since in the area under study, formal employment opportunities are seasonal and almost inexistent. There is therefore no standard 'shadow rate' that one can use in valuing the time that is used to attend and wait for health care. To complicate matters, the inexistence of wage employment means that any 'shadow rate' used might not give the true value of labour.

This has been looked at from two different angles. The first termed the "dual economy approach" (Scott MFG et al, 1976) sees the economy as being made up of the traditional and modern parts. It is argued from this angle that the marginal cost of labour is zero since there is a lot of unemployment of the unskilled community members in the rural areas. From the second angle, a local labour market for the unskilled members of the community is identified. The wage rate in this local market is then used to value the time of the unskilled (Squire L., 1979). The questionnaire used in this study was made in such a way that the opportunity cost of time could be accurately calculated. The questionnaire was structured in such a way that the total time spent for travel by a patient could easily be remembered. For example, considering the transport situation in the area of study, it was realised that people hardly went straight to the health provider (except for those who lived near the provider). The respondents were asked the time it took them to complete the various portions of the journey from their homes to the health provider. Take for example, a patient in village A who is expected to change vehicles at village B to go to health provider J. Rather than ask how long it took to provider j, he was asked how long it takes him to village B and how long from village B to the provider. These times were then added up.

Of particular importance to this study are the recent attempts made by Wang'Ombi (1984) and Ferber *et al* (1985) to estimate the shadow wages of the unemployed. The assumption that was made in this study was that every hour spent by the patient in the health unit was effectively time that could have been used in the rice farm. Total monthly income of a labourer in the rice farm was got from the government agency which was charged with the responsibility of rice cultivation in this area. The time cost was calculated based on a 20-day month and an 8-hour working day. Men and women were assumed to earn the same.

The calculation of the opportunity cost of time in the study area

A person working in a rice farm can dig about three "rice plots" in a day at the cost of 350 frs CFA each resulting in 1050 francs CFA per working day of 8 hours. The hourly income was then obtained relative to work in the rice farms by dividing 1,050 frs by 8 hours.

OPPORTUNITY COST OF SEEKING HEALTH CARE = (Time spent for treatment
x daily income per person
x [number of people accompanying patient
+ 1 patient]).

APPENDIX 8.1: CORRELATION MATRIX OF DEPENDENT AND INDEPENDENT VARIABLES.

Variables	Logexp	Distance	Travel	Consult	Timewait	Monex	Logasset
Logexp	1.0000	.1403	.1531	.0483	.1126	.1709*	-.1408
Distance	.1403	1.0000	.6203**	.1093	.3428**	-.0002	.2347**
Travel	.1531	.6203**	1.0000	.0077	.2732**	.1226	.0682
Consult	.0483	.1093	.0077	1.0000	.0881	-.0779	-.0176
Timewait	.1126	.3428**	.2732**	.0881	1.0000	.1111	.2988**
Monex	.1709*	-.0002	.1226	-.0779	.1111	1.0000	.1127
Logasset	-.1408	.2347**	.0682	-.0176	.2988**	.1127	1.0000
Logincom	.2359**	-.0777	-.0386	.1297	.0178	.1640	.2267**
Age	.0579	-.1297	.0250	-.2145*	-.1239	.0155	-.2066*
Sex	-.1243	.1462	.0113	-.0429	.0983	-.0134	.1496
Edu	-.0717	.1379	.0316	.0900	.0352	.0346	.1782*
Size	.0721	-.1082	-.0261	.0944	-.1581	.1177	-.2926**
Mstatus	-.0385	.1704*	.0612	.0123	.0779	-.0379	.0084
House	.0305	.0326	.0201	.0665	-.0058	.0394	.0162

1-tailed Signif: * - .01 ** - .001

From the above table, the relationship between income (logincom) and expenditure in public health centres (Logexp) was statistically significant as well as the expenditure for other items other than health care (monex).

CORRELATION MATRIX CONTINUED.

Variables	Logincom	Age	Sex	Edu	Size	Mstatus	House
Logexp	.2359**	.0579	-.1243	-.0717	.0721	-.0385	.0305
Distance	-.0777	-.1297	.1462	.1379	-.1082	.1704*	.0326
Travel	-.0386	.0250	.0113	.0316	-.0261	.0612	.0201
Consult	.1297	-.2145*	-.0429	.0900	.0944	.0123	.0665
Timewait	.0178	-.1239	.0983	.0352	-.1581	.0779	-.0058
Monex	.1640	.0155	-.0134	.0346	.1177	-.0379	.0394
Logasset	.2267**	-.2066*	.1496	.1782*	-.2926**	.0084	.0162
Logincom	1.0000	-.1968*	-.0917	.0184	-.3217**	-.1779*	.0849
Age	-.1968*	1.0000	-.0920	-.3183**	.1991*	-.0637	-.1415
Sex	-.0917	-.0920	1.0000	.1100	.1057	.6147**	-.0248
Edu	.0184	-.3183**	.1100	1.0000	-.0618	.0590	.0222
Size	-.3217**	.1991*	.1057	-.0618	1.0000	.2072*	-.0917
Mstatus	-.1779*	-.0637	.6147**	.0590	.2072*	1.0000	-.0336
House	.0849	-.1415	-.0248	.0222	-.0917	-.0336	1.0000

1-tailed Signif: * - .01 ** - .001

The relationship between income (logincom) and the wealth (logasset) and household family size (size) variables was highly significant. There was also a statistically significant relationship between age, marital status and income.

APPENDIX 8.2

VARIABLES NOT IN THE EQUATION.

**** MULTIPLE REGRESSION ****

Equation Number 1 Dependent Variable.. LOGEXP

Variable	Beta In	Partial Tolerance	VIF	Min Toler	T	Sig T
TRAVEL	.043124	.037056	.594957	1.681	.537629	.535 .5934
CONSULT	-.049599	-.053303	.930607	1.075	.788005	-.770 .4423
MONEX	.095412	.101757	.916483	1.091	.779635	1.475 .1417
AGE	.083646	.089779	.928226	1.077	.782729	1.300 .1950
SEX	-.099767	-.107270	.931500	1.074	.774064	-1.556 .1212
EDU	-.013419	-.014683	.964757	1.037	.773596	-.212 .8325
MSTATUS	-.036877	-.039345	.917224	1.090	.790732	-.568 .5707
HOUSE	.013679	.015142	.987326	1.013	.790875	.218 .8273

End Block Number 1 PIN = .050 Limits reached.

APPENDIX 9.1A

OUTPUT FROM MODEL WITH THE INCOME VARIABLE PUT INTO THE UTILITY EQUATION FOR THE GOVERNMENT HEALTH CENTRES AND THE SOCIO-ECONOMIC VARIABLE INTO THAT OF THE PRIVATE HEALTH CENTRES.

The statistics obtained are indicated below.

Hague Consulting Group
ALOGIT Version 3F/2 (512)

12:56:45 on 15 Aug 94

Household survey model 1.0

Convergence achieved after 6 iterations

Analysis is based on 603 observations

Likelihood with Zero Coefficients = -6498.7116

Likelihood with Constants only = -5442.3802

Initial Likelihood = -6498.7116

Final value of Likelihood = -5362.6071

"Rho-Squared" w.r.t. Zero = .1748

"Rho-Squared" w.r.t. Constants = .0147

ESTIMATES OBTAINED AT ITERATION 6

Likelihood = -5362.6071

	dist	time	cost	c1-ghs	c2-phs	c3-ghc
Estimate	.5195E-05	-.1782E-02	-.2347E-04	.5276	-.1368	1.430
Std. Error	.174E-05	.538E-03	.394E-05	.992E-01	.155	.719E-01
"t" Ratio	3.0	-3.3	-6.0	5.3	-.9	19.9

	c4-phc	c6-self	SE-status	housesize	income
Estimate	-.2959E-01	.9317	-.8202E-01	-.2771	.1355E-04
Std. Error	.259	.666E-01	.702E-01	.426E-01	.151E-05
"t" Ratio	-.1	14.0	-1.2	-6.5	9.0

Correlation of Estimates (multiplied by 1000)

	1	2	3	6	7	8	9	10	11	12	
time	2	-349									
cost	3	40	-248								
c1-ghs	6	-332	-245	-400							
c2-phs	7	-573	-156	-386	744						
c3-ghc	8	49	-388	-4	558	413					
c4-phc	9	-20	-9	-99	169	132	138				
c6-self	10	-113	440	-18	223	112	366	137			
SE-status	11	-16	-102	45	42	38	-373	45	-48		
housesize	12	9	3	18	-17	-17	11	-832	4	-33	
income	13	27	-16	30	-19	-23	13	51	-3	-29	-429

Convergence (option 3) value is .2250E-03

Normal finish after 2 mins. 37.4 secs.

APPENDIX 9.1B

OUTPUT FROM MODEL WITH THE INCOME VARIABLE PUT INTO THE UTILITY EQUATION FOR THE PRIVATE HEALTH CENTRES AND THE SOCIO-ECONOMIC VARIABLE INTO THAT OF THE PRIVATE HEALTH CENTRES.

The statistics obtained are indicated below.

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Household survey model 1.0

Convergence achieved after 5 iterations

Analysis is based on 603 observations

Likelihood with Zero Coefficients = -6498.7116

Likelihood with Constants only = -5442.3802

Initial Likelihood = -6498.7116

Final value of Likelihood = -5401.6972

"Rho-Squared" w.r.t. Zero = .1688

"Rho-Squared" w.r.t. Constants = .0075

ESTIMATES OBTAINED AT ITERATION 5

Likelihood = -5401.6972

	dist	time	cost	c1-ghs	c2-phs	c3-ghc
Estimate	.4691E-05	-.2068E-02	-.2151E-04	.5433	-.1081	1.574
Std. Error	.174E-05	.537E-03	.393E-05	.992E-01	.155	.804E-01
"t" Ratio	2.7	-3.8	-5.5	5.5	-.7	19.6

c4-phc c6-self SE-status income

Estimate	-1.137	.9150	.1342E-01	-.3787E-05
Std. Error	.139	.666E-01	.198	.994E-06
"t" Ratio	-8.2	13.7	.1	-3.8

Correlation of Estimates (multiplied by 1000)

	1	2	3	6	7	8	9	10	11	
time	2	-343								
cost	3	46	-259							
c1-ghs	6	-340	-238	-400						
c2-phs	7	-580	-149	-385	744					
c3-ghc	8	9	-441	77	524	394				
c4-phc	9	-2	-20	-122	265	195	235			
c6-self	10	-109	440	-22	224	114	283	263		
SE-status	11	-9	6	-15	9	9	23	-604	0	
income	13	44	108	-108	-22	-25	-558	40	50	-43

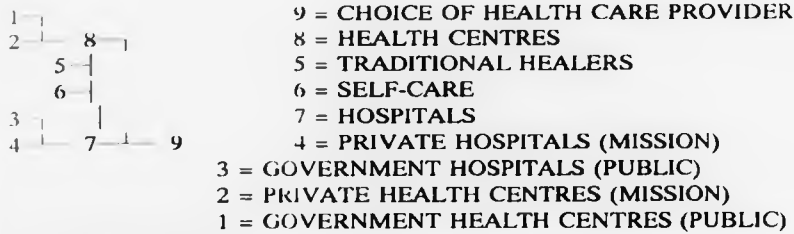
Convergence (option 3) value is .1861E-03

Normal finish after 2 mins. 13.0 secs.

APPENDIX 9.2

ESTIMATION RESULTS FOR THE NESTED MULTINOMIAL LOGIT

Tree from root to level 3



Maximum Iterations 10

Convergence criterion is .10E-01 Option 3

Non-linear algorithm being used

TABLE A10.2: ESTIMATED RESULTS OF THE NESTED MULTINOMIAL LOGIT MODEL (NMNL)

VARIABLES	COEFF	T-RATIO	NOTES			
TRAVEL TIME	-.3050E-02 (.625E-03)	-4.9	ALL ALTERNATIVES			
PRICE	-0.1917E-06 (.286E-05)	-0.1	ALL ALTERNATIVES			
VARIABLES	GHC	PHC	GHOSP	PHOSP	TRAD	SELF
CONSTANT	-.4909	-1.416	.1555	-.5626	0	.8861
Std deviation	.106	.379	.143	.175		.724E-01
T-ratio	-4.6	-3.7	1.1	-3.2		12.2
SOCIO-ECON		.6837E-01				
Std deviation		.367E-01				
T-ratio		1.9				
HOUSE SIZE	.1306					
Std deviation	.457E-01					
T-ratio	2.9					
INCOME		0.8166E-05				
Std deviation		0.137E-05				
T-ratio		6.0				
LOGSUM	2.491					
std deviation	0.498					
T-ratio	5.0					

APPENDIX 9.3

METHOD FOR THE SIMULATION OF REVENUE FROM GOVERNMENT HEALTH UNITS.

The simulation of the revenue raising potential of community financing and the assessment of its adequacy was based on the formula developed by Ellis (1987) in Kenya. Consideration was also be given to those that have been recommended by others like Muthuri et al (1989) and Mwabu (1986). According to Ellis (1987), the revenue from the government health centre can be modeled as the product of six factors. He indicated that:

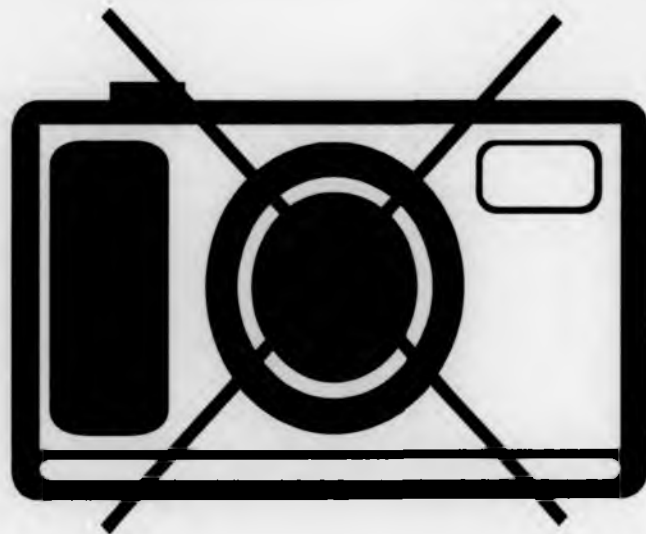
Total Annual Revenue from a government health centre was equal to:

- Amount charged for an outpatient service.....(i)
- X Number of Outpatient visits per year..... (ii)
- X Proportion of Outpatients eligible for payments.....(iii)
- X Proportion of Outpatients that are able to pay.....(iv)
- X Proportion of Outpatients services following
the fees introduction.....(v)
- X Proportion of fees that is kept after taking care
of the administrative costs.....(vi)

Some of the factors above are difficult to estimate. For example, it is difficult to get a clear idea of the proportion of outpatients that will be able to pay and the demand reduction that will occur following the fee introduction. However, introducing community financing will result in a reduction in the number of patients able to pay and consequently demand. Evidence from studies (De Ferranti, 1985, Gertler P., Locay L., and Sanderson W. 1986) indicate that the reduction can be as much as from between 10 to 20%.

The calculations will be based on a single government health centre in a rural area. This can be extrapolated to other health centres in the area. From the health facility study, it was seen that the government health centres saw 10 outpatients a day. Certain assumptions will be made to be able to use the said formula: Only 75% of the patients will be eligible to pay (from focus group discussions). Of this number, 90% will be able to pay and with the fee introduction, demand will reduce by at most 5% (see chapter 10). In the final analysis, it is estimated that the administrative cost will be about 20% leaving 80% for the health centre to use.

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P3&1