CHAPTER II

Concept And Methodology

Each year around 210 million women become pregnant around the world. More than 20 million women experience ill-health as a result of pregnancy; for some the suffering is permanent. Quality maternal care is also important in preventing newborn deaths and morbidity. Over three million newborns die within the first week of life; in addition, more than three million babies are born dead.

Addressing the complex challenge of maternal and newborn deaths and morbidity requires fully functioning health care services that give a high priority to pregnancies and their outcomes. Besides this, interventions are needed at the community and policy levels to ensure that pregnancies are wanted and that women have access to the care they need when they need it. Countries are struggling with health sector reform and other health system changes necessitated by fiscal constraints, growth of the private sector and deteriorating quality in the public and private sectors. These changes have an impact on the development, use and delivery of services (including services that contribute to making pregnancy safer), especially to the disadvantaged populations (WHO, 2001).

Maternal health is identified as one of the components of primary health care. Pregnancy and childbirth are the leading cause of death among women in many developing countries. Maternal death is not just a discrete event, but, rather the culmination of a process. It has bearing upon the development of the girl child in to a healthy adolescent and a healthy mother. A healthy mother and a child soon after birth is the result of a holistic development of the girl child. In short a practically complication free delivery requires a healthy expecting mother to have proper ante-natal care and
required number of ante-natal check-ups to assure that the process of delivery is, under normal circumstances, complication-free.

Maternal mortality and maternal morbidity are two major problems faced by the population of India. Childbirth is that point in a woman’s life, which can determine the future health of the mother and the baby and hence, the future generation of the nation. The risk of maternal death accumulates over a woman’s reproductive lifetime. Every time she becomes pregnant, she runs the risk. This is different from infant mortality, to which each person is exposed only once. In developing countries, maternal deaths often account for more than one-quarter of deaths among women. Actually, maternal deaths are part of a larger category called ‘reproductive mortality’, which includes both maternal deaths and deaths due to the side effects of contraceptive methods (Beral, 1979). In developed countries, almost all deaths from obstetric complications are prevented and most women use some form of contraception. Contraceptive deaths make up a large proportion of the small number of reproductive deaths in developed countries. In developing countries, the situation is reverse. Reproductive deaths are quite common, but almost all of them are due to complications of pregnancy and delivery, rather than to contraceptive side effects.

Utilisation of Health Services —the Public Vs Private Scenario

As already discussed, the well-informed population of Kerala shows a very high demand for health care. The high-morbidity low-mortality syndrome (Panicker and Soman, 1985) proves this. In spite of the high demand for health care, the Kerala government could not increase its hospital beds substantially, for lack of resources for the health sector. The unmet health care need is currently serviced by the private sector, resulting in commercialization of health care, high health care costs and denial of service to persons unable to pay.
A study by T.P. Aravindan and Kunhikkannan (2000) reveals that only around 28% of the acute illness cases get reported to the government hospitals for treatment. Of the rest, 58% seeks health care from the private institutions and around 5% goes to co-operative and other medical institutions. About 9% goes in for self-care. (Table 6.1).

Table 2.1
Sector-wise Distribution of the Place of Medical Treatment for Acute Illness

<table>
<thead>
<tr>
<th>Place of treatment</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-treatment</td>
<td>8.57</td>
</tr>
<tr>
<td>Government hospitals</td>
<td>28.57</td>
</tr>
<tr>
<td>Private hospitals</td>
<td>58.01</td>
</tr>
<tr>
<td>Others</td>
<td>4.76</td>
</tr>
</tbody>
</table>


The study also established various reasons for choosing private hospitals over public institutions. Of the reasons cited, the most important one was the belief that adequate care would be taken by private hospitals. The other major reasons established were easy access, availability of medicines, better behaviour of doctors and staff in private hospitals etc. (Table 6.2).

Table 2.2
Reasons for preference of private hospitals

<table>
<thead>
<tr>
<th>Reason</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequate care in private hospitals</td>
<td>23</td>
</tr>
<tr>
<td>Nearness to private hospitals</td>
<td>15</td>
</tr>
<tr>
<td>No medicines in government hospitals</td>
<td>14</td>
</tr>
<tr>
<td>Better behaviour from doctors and staff in private hospitals</td>
<td>13</td>
</tr>
<tr>
<td>No treatment from government hospitals</td>
<td>10</td>
</tr>
</tbody>
</table>
A similar trend is reflected in the case of utilization of health care services for obstetric care.

**Background Of The Study**

One of the thirteen goals to be achieved by 2000-2015 of the National Health Policy 2002, is reduction of maternal deaths to 100 per lakh of live births. This assumes greater significance in the context of a Total Fertility Rate of 4.3 per woman in the reproductively active category. This problem of gigantic proportions can be solved only with the development of sound infrastructure. Development of infrastructure as such will not take care of the sufficiently bad situation. There has to be an equitable distribution of this, so that, all the potential users get desired access - physical, financial, cultural, (this is particularly important in the case of obstetric care, since the availability of lady doctors in private facility was quoted to be one major reason for opting private services for obstetric care services) - to the health care facility.

Kerala paints a different picture. The Total fertility rate in Kerala is only 1.5 and Maternal mortality rate is only 14 per thousand live births. Even though the state is well equipped as far as the availability of infrastructure is concerned (as is proved by 97.1% of institutional delivery), the problem that seize the immediate attention of a researcher is the unnaturally skewed bias in favour of the private sector.
In Kerala, 97.1% of the deliveries are institutional in nature. Of this, around 60% of the deliveries take place in private hospital. Only 40% of the deliveries take place in public health care facilities.

<table>
<thead>
<tr>
<th>Place of Childbirth</th>
<th>1996</th>
<th>1987</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home</td>
<td>2.9</td>
<td>21.2</td>
</tr>
<tr>
<td>Private hospital</td>
<td>58.3</td>
<td>41.5</td>
</tr>
<tr>
<td>Government hospital</td>
<td>38.8</td>
<td>36.9</td>
</tr>
<tr>
<td>Others</td>
<td>0.00</td>
<td>0.4</td>
</tr>
<tr>
<td>Total</td>
<td>100.00</td>
<td>100.00</td>
</tr>
<tr>
<td>Unaccounted</td>
<td>00</td>
<td>40</td>
</tr>
</tbody>
</table>

Source: T.P. Kunhikannan, K.P. Aravindan, 2000

Even though there is around 100-150% difference in the cost of maternity care in a private facility as compared to the public facility, people generally opt for private facility. According to the study conducted by T.P. Kunhikannan and K.P. Aravindan, the average cost of medical care is around Rs. 2505 (2000 data). The average cost of medical care in a government hospital is quoted to be Rs. 2025 while it is Rs. 2870 in a private institution. But according to the present study, the rates have changed to around Rs. 3000 and 4500 respectively. Given this vast difference in expenditure, the fact that around 60% people still opt for private services is a phenomenon worth attention.

In Anderson’s model of health care, three sets of determinants that influence health service utilization are identified. Anderson. R, Newman. J. F, (1973). In the model, society and systems determinants are postulated to
influence individual determinants, which directly impinge on service use. Societal determinants include the current state of knowledge as well as people's attitudes and beliefs about health and illness. The factors operate either directly to influence the individual determinant or indirectly through their influence on the system factors. System factors include health service resources (both volume and distribution) and organization of health services. However, it is the individual determinants that are directly related to health services.

On the basis of the present study, the researcher has developed a model. It is explained below.

First, the supply of health services is explained. In the special case of obstetric care, though Ayurveda has a branch of specialization for obstetric care known as 'Prasuthi Tantra', allopathic system has a sort of monopoly since surgical side of obstetrics is developed only in allopathy. In olden days, births were attended by traditional birth attendants called 'pathichi', and surgical intervention/backup facilities were unknown. The introduction of allopathic system of medicine and its modern method of obstetric care have almost entirely wiped out the idea of home delivery, at least in the state of Kerala. People seem to have totally rejected the seemingly crude Ayurvedic system and accepted the British system or allopathy in the case of obstetric care. Now the situation is that, in almost all the cases, the patient is under a doctor's guidance right from the time of confirmation of pregnancy (if not from the time of conception itself).

Allopathy having a monopoly over the obstetric care scenario, the next aspects of influence are financial feasibility, physical accessibility and perceived efficiency of medical care. They constitute the demand aspect of health care. For utilization of obstetric care, it is ultimately the question of choice between the public care and private care. Thus, the degree of utilization
of these two sources of medical care is dependent on two basic factors – the supply of health services, which the informed population weighs in the background of financial and physical feasibility and efficiency of care, and effective demand for health services, which has a bearing on socio-economic status of the patient/household and perceived efficiency of care offered.

The starting point for the process of utilization of health services for obstetric care is the health status of a given community. The health status generates the need for health or medical care. Medical care given for obstetric services can either be basic obstetric care (if there are no complications) and emergency obstetric care (if there are complications). Which service is used by the patient depends on the health status of the patient.

As regards the health care facility chosen, the patient has two options – she can either choose public health care facility or private health care facility. The patients’ or household’s socio-economic status will decide the type of facility that is opted for. Private care will definitely mean more of cost vis-à-vis public care. This is in other words ‘financial accessibility’.

Another factor that influences the type of health care facility chosen is the attitude of the individual (who becomes the patient) towards the health care she receives. This attitude is determined by the information base of the patient/her family regarding the efficiency of the different types of facility that is available to them. This information base which the patient/her family is having assigns a ‘perceived value’ for the services (as gauged through its capability to assure a healthy, normal life for herself and her kid) that she is to choose. This is ‘perceived efficiency’.

Yet another factor that plays an important role in facility chosen is physical accessibility. That is, the distance of the facility from one’s home.
These are the factors, which will influence the decision as to which hospital to choose – the public hospital or the private hospital. In the usual case, the first step would be the choice – whether to utilize a service or not. In the case of obstetric care in Kerala, where the percentage of institutional delivery is well over 95%, one can assume that ultimately, it is not a question of utilization, but the choice between public health care facility and private health care facility. Thus, the socio-economic status of the patient/household and the perception about the efficiency of the hospital together decide the effective demand for public/private service.

In other words, the behavior of an individual towards health care partially depends on the need for such care (which is almost assured to be 100%), affordability, and to a great extent, on the evaluation of health services needed by him and available to him.

So, both in the supply aspect and the demand aspect of the model, the efficiency of the health services offered is found to have an important role. In the study, the efficiency aspect of the hospitals is considered.

Efficiency of health services, as it affects the achievement of bigger and more noticeable targets like social equality and equity, can be considered as a major factor affecting the advancing of basic human capabilities.
Model of health service utilization in Obstetric care

Supply of obstetric

- Allopathy
  
<table>
<thead>
<tr>
<th>Public services</th>
<th>Private services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Accessibility</td>
<td>Physical Accessibility</td>
</tr>
<tr>
<td>Financial Accessibility</td>
<td>Physical Accessibility</td>
</tr>
</tbody>
</table>

Health status

Need for medical care

Attitude Towards Health care

- Socio Economic Status
- Perceived Efficiency of care

Private Care

Effectiveness

Choice of health care services

Public Care

Perceived value of services
Statement Of The Problem

There is a definite bias in favour of private hospitals as far as obstetric delivery is concerned.

Hypothesis

There is no difference in efficiency in delivering obstetric care in public and private hospitals.

Objectives of the study

Primary objective

To compare the efficiency of public and private hospitals in delivering obstetric care

Secondary objective

To identify the institutional factors, which contribute to inefficiency in delivering obstetric care facility.

Methodology

District Profile

The study was conducted in the district of Ernakulam. Area of the district is 2407 square kilometers, with a coastline of 46kms. The district lying at sea level has a population of 3105798 (15,38,397 males and 15,67,401 females) according to 2001 census. The sex ratio is 1017. Density of population of the district is 1290 persons per square kilometer. The percentage of population living in urban areas is 54.3, the highest in Kerala. The district has a literacy rate of 93.42\% (Male- 95.95\%, female – 93.42\%)

The district has the largest number of private allopathic medical institutions in the state. Table 6.4 shows the distribution of allopathic medical institutions in the state.
Table 2.4
District wise Break-up of Allopathic Medical Institutions in the State

<table>
<thead>
<tr>
<th>Districts</th>
<th>Number of institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trivandrum</td>
<td>431</td>
</tr>
<tr>
<td>Kollam</td>
<td>369</td>
</tr>
<tr>
<td>Pathanamthitta</td>
<td>257</td>
</tr>
<tr>
<td>Alappuzha</td>
<td>367</td>
</tr>
<tr>
<td>Kottayam</td>
<td>474</td>
</tr>
<tr>
<td>Idukki</td>
<td>239</td>
</tr>
<tr>
<td>Ernakulam</td>
<td>542</td>
</tr>
<tr>
<td>Trichur</td>
<td>288</td>
</tr>
<tr>
<td>Palghat</td>
<td>180</td>
</tr>
<tr>
<td>Malappuram</td>
<td>237</td>
</tr>
<tr>
<td>Kozhikode</td>
<td>372</td>
</tr>
<tr>
<td>Wayanad</td>
<td>111</td>
</tr>
<tr>
<td>Kannur</td>
<td>264</td>
</tr>
<tr>
<td>Kasaragod</td>
<td>157</td>
</tr>
<tr>
<td>State</td>
<td>4288</td>
</tr>
</tbody>
</table>

Source: Compiled from the Report on Private Medical Institutions in Kerala, Dept. of economics and statistics, 1996

The district has the largest number of doctors (Post graduates, graduates and below graduation), nurses, pharmacists, attenders, lab technicians, X-ray technicians, scanning technicians, radiologists and attenders employed in the allopathic sector.
Table 2.5
District-wise Break-up of Details of Manpower in Allopathic Medical Institutions

<table>
<thead>
<tr>
<th>District</th>
<th>Dctrs</th>
<th>Nrses</th>
<th>Phrmcs</th>
<th>Lab techn</th>
<th>X-ray Techn</th>
<th>Scening Techn</th>
<th>Rdlgst</th>
<th>Attn drs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trivandrum</td>
<td>1181</td>
<td>1178</td>
<td>164</td>
<td>280</td>
<td>54</td>
<td>13</td>
<td>12</td>
<td>745</td>
</tr>
<tr>
<td>Kollam</td>
<td>834</td>
<td>1203</td>
<td>182</td>
<td>256</td>
<td>55</td>
<td>6</td>
<td>21</td>
<td>429</td>
</tr>
<tr>
<td>Pathanamthitta</td>
<td>642</td>
<td>780</td>
<td>142</td>
<td>176</td>
<td>41</td>
<td>10</td>
<td>17</td>
<td>197</td>
</tr>
<tr>
<td>Alappuzha</td>
<td>650</td>
<td>793</td>
<td>140</td>
<td>175</td>
<td>35</td>
<td>7</td>
<td>13</td>
<td>222</td>
</tr>
<tr>
<td>Kottayam</td>
<td>1041</td>
<td>1290</td>
<td>240</td>
<td>265</td>
<td>65</td>
<td>9</td>
<td>8</td>
<td>502</td>
</tr>
<tr>
<td>Idukki</td>
<td>380</td>
<td>552</td>
<td>133</td>
<td>103</td>
<td>27</td>
<td>0</td>
<td>9</td>
<td>249</td>
</tr>
<tr>
<td>Ernakulam</td>
<td>1768</td>
<td>2285</td>
<td>348</td>
<td>501</td>
<td>134</td>
<td>20</td>
<td>35</td>
<td>814</td>
</tr>
<tr>
<td>Trichur</td>
<td>984</td>
<td>1139</td>
<td>184</td>
<td>223</td>
<td>82</td>
<td>10</td>
<td>24</td>
<td>585</td>
</tr>
<tr>
<td>Palghat</td>
<td>494</td>
<td>471</td>
<td>65</td>
<td>83</td>
<td>23</td>
<td>1</td>
<td>7</td>
<td>159</td>
</tr>
<tr>
<td>Malappuram</td>
<td>543</td>
<td>597</td>
<td>112</td>
<td>105</td>
<td>37</td>
<td>4</td>
<td>17</td>
<td>221</td>
</tr>
<tr>
<td>Kozhikode</td>
<td>802</td>
<td>648</td>
<td>145</td>
<td>147</td>
<td>42</td>
<td>10</td>
<td>13</td>
<td>410</td>
</tr>
<tr>
<td>Wayanad</td>
<td>204</td>
<td>206</td>
<td>57</td>
<td>45</td>
<td>14</td>
<td>0</td>
<td>2</td>
<td>196</td>
</tr>
<tr>
<td>Kannur</td>
<td>581</td>
<td>653</td>
<td>103</td>
<td>110</td>
<td>26</td>
<td>13</td>
<td>11</td>
<td>322</td>
</tr>
<tr>
<td>Kasaragod</td>
<td>282</td>
<td>295</td>
<td>46</td>
<td>53</td>
<td>8</td>
<td>11</td>
<td>9</td>
<td>115</td>
</tr>
<tr>
<td>State</td>
<td>10388</td>
<td>12090</td>
<td>2061</td>
<td>2522</td>
<td>643</td>
<td>114</td>
<td>198</td>
<td>5166</td>
</tr>
</tbody>
</table>

Source: Compiled from the Report on Private Medical Institutions in Kerala, Dept. of economics and statistics, 1996

Columns - Districts, Doctors, Nurses, Pharmacists, X-ray technicians, Scanning technicians, Radiologists, Attenders

Ernakulam has a very significant and vital position as far as the private medical institutions (allopathic) of the state are concerned. The district is best suited for the study. For every ten square kilometers, on an average one gets 2.2 Private Medical Institutions as against 1.1 government health institution. Out of the 542 PMIs, only 323 medical institutions are registered. Other
hospitals are not registered. Only 189 hospitals are having inpatient facility. (Department of Economics and Statistics, Government of Kerala, 1996) Of these hospitals, only those hospitals with mini theatre facilities were considered, as this was essential for providing emergency obstetric care. (UNFPA, Checklist for Planners) The number of such hospitals came to about ninety. Though the number given as registered PMIs in 1996 was found to be 189, majority of the hospitals were found to have either closed down or in a few instances, were converted to satellite centers of large hospitals. It is seen that such mergers are becoming quite common.

Of the ninety hospitals (Decision Making Units in DEA terminology), 12 hospitals belong to the co-operative and charitable trust category. As getting relevant information from such type of institutions were not possible, they were not included in the study. Only eight hospitals were found giving maternity services in the government sector. Data was collected from all the government hospitals. Data provided by one government hospital was considered to be inconsistent and was not used. Of the remaining hospitals in the for-profit sector (which came to about seventy eight), data were collected from forty hospitals. Seven of the hospitals did not provide some information, which was crucial for the study. Even after repeated attempts, they were reluctant to part with some essential information. So the data from those hospitals were not considered. Data was collected from thirty-three PMIs and seven government hospitals.

The private, for profit sector was divided in to three categories based on the number of deliveries per year to assure that hospitals belonging to all scales was considered. The first category was those hospitals having 1-300 deliveries per year. The next category was Medium type hospitals, which had 301-601 deliveries per year. The next category was 901 and above deliveries per year.
Table 2.6
Population of Hospitals in the Study

<table>
<thead>
<tr>
<th>Number of Private for-profit hospitals considered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small type</td>
</tr>
<tr>
<td>50</td>
</tr>
</tbody>
</table>

Fifty percent of hospitals were taken from each category. Multi stage random sampling technique was used. Hospitals were chosen at random from the list of each type of hospital. As mentioned earlier, even though data were collected from forty hospitals, only data furnished by thirty-three hospitals could be used. Of them, twenty belonged to the small type, eight belonged to the medium type and five belonged to the large type hospitals.

In the next stage, a detailed questionnaire was prepared using the input of measures from the preliminary interviews with hospital authorities. The different sections of the questionnaire are:

- Infrastructural and physical facilities
- Staffing and staff service utilisation
- Expenditure on drugs, maintenance
- Number of deliveries per year
- Number of days of admission

**Data Envelopment Analysis**

The study uses Data envelopment analysis (DEA) approach to analyse the data.

Data Envelopment Analysis (DEA) is an innovative method that is particularly suitable for measuring performances of service organizations such as the provision of bus services, which has been developed in the last two
decades. This approach has been successfully applied where conventional methods did not perform well. DEA has also been acclaimed as a leading edge method that supports benchmarking, continuous improvement and strategic analysis. Thus DEA has been found to be particularly suitable in solving the following three basic performance questions that any organisation is faced with:

- How well are we doing relative to the others doing the same things as we do?
- What do we need to improve?
- Who are the best-in-class performers for benchmarking purposes?

DEA is a special application of linear programming. In recent years it has become an increasingly valuable tool for making provider comparison. Applications of DEA are numerous ranging from comparison of schools, universities, courts, farmers, and transit services to health care services.

DEA provides considerable flexibility in data selection. The inputs and outputs can be continuous, ordinal or categorical variables. DEA also allows the inputs and outputs to be measured in different units e.g. in Rupees, kilometres, etc. The term output in DEA can be broadly interpreted to mean not only output performance measure but also quality performance or any outcome performance measure. Likewise efficiency can be broadly interpreted to mean not only an assessment of efficiency but also an assessment of quality and effectiveness (outcome). Consequently, DEA can make efficiency assessment, quality assessment, effectiveness assessment and any of this combination.

Lovell (1993)\(^8\), cites the argument made by Pestieau and Tulkens (1990)\(^9\) that, due to differences in objectives, public and private providers should only be compared on the criterion of productive (i.e., technical)
efficiency because it is "the only objective shared by both types of producer and the only objective not in conflict with other goals of the public producer. In the light of the points made in the theoretical background of this work, it was essential to use a methodology that could assess and compare efficiency between these two categories of hospitals – private hospitals and public hospitals. This is where the use of data envelopment analysis became handy. The other reason for using DEA as an analytical tool is the flexibility of DEA in handling multiple input and output measures, which is required essentially in this study. During the pilot survey, it was found that it is practically not possible to get data related to costs. DEA model does not use the data related to cost, but uses the data for the size of the hospital labour force, the number of beds, the number of patients, and hospital specific/ service specific characteristics which are relatively reliable.

Technical Efficiency

Different efficiency concepts may apply to different levels of the decision-making process. Technical efficiency is, however, a relevant measure of facility performance in this context, since it is concerned with the use that is made of a given quantity of inputs. Technical efficiency implies producing maximum output with given inputs. It measures average productivity attainable at the most productive scale size and this is a pre requisite for cost-efficiency. (Banker et al., 1984)10 Understanding technical efficiency will provide meaningful insight in to the optimal allocation of hospital resources.

In the study, efficiency scores of public (government) and private medical institutions were calculated based on Data Envelopment Analysis. The efficiency score of each hospital is thus expressed as a single value which ranges from a maximum score of 1 for the efficient hospital to a score of less than one (above zero) for the inefficient hospital. Having calculated the efficiency score, the scores were regressed against a set of observed
characteristics of the hospitals and their environments by means of truncated regression model.

The truncated regression model indicates a relationship between the efficiency score and influencing factors. A ratio analysis of the major turnover rates and occupancy rates were also done to compare the mean utilization pattern of the infrastructure and staff of the hospitals.

Review of literature

Citizens and governments can make services that contribute to human development work better for poor people—and in many cases, they have. But too often services fail poor people. Services are failing because they are falling short of their potential to improve outcomes. They are often inaccessible or prohibitively expensive. However, even when accessible, they are often dysfunctional, extremely low in technical quality, and unresponsive to the needs of a diverse clientele. In addition, innovation and evaluation—to find ways to increase productivity—are rare.

(World Development Report, 2004)\(^\text{11}\)

Health is an important component in raising the well being of a population. Improvements of health status play a vital role in the enhancement of human capitalization. (Sen, 1987)\(^\text{12}\)

Health is a term most people find difficult to define. Health is a common theme in most culture. Health is viewed differently by different people all over the world. (Goel, 1984)\(^\text{13}\) Consequently, there is much controversy surrounding the conceptualization and measurement of health. (Alan Clarke, 1999)\(^\text{14}\)
The definition of health goes beyond the idea of being free from illness, its cure, and prevention. Over time, it has evolved into a more wholistic concept, taking care of not just the physique, but also the mind and the society. A brief review of the definitions of health is given below.

The World Health Organisation (1948)\(^{15}\) defines health as 'a state of complete physical, mental, and social well-being and not merely an absence of disease or infirmity'. Although this is an attractive definition, it is subjective and hard to assess (Deon Filmer, \textit{et al}, 2000)\(^{16}\). World Health Organisation (1957)\(^{17}\) defined health as a condition or quality of human organism expressing the adequate functioning of the organism in a given condition or quality of the human organism in a given condition, genital and environmental. World Health Organisation (1986)\(^{18}\) revealed that health is not only a bio-medical phenomenon, but also one, which is influenced by social, psychological, cultural, economic, and political factors. This is known as psychological concept of health. Thus, health is both a biological and social phenomenon.

A French scholar, Rene Dubois, has described health so defined as 'a utopian state' (The New Encyclopaedia Britannica, 1997)\(^{19}\). Rexford and Stephen (2000)\(^{20}\) stated that 'health is a nebulous concept that defies precise measurement'. Victor R. Fuschs (1974)\(^{21}\) opined that there is no completely objective, invariant ordering across individuals or populations with respect to health. 'Health can be defined according to criteria such as life expectancy, capacity for work, need for medical care, or ability to perform a variety of personal and social functions'. In terms of measurement, health depends much on the quantity of life i.e., the number of life years remaining as it does on the quality of life'. Economists view health as a durable good type of capital, which provides services.
For Hema et al, (1993), health is a multi dimensional phenomenon. It is not only about disease and medical care system, but also about environment around us, which influences the mental and physical state of person. According to Park (2000), 'health is not mainly an issue of doctors, social service, and hospitals. It is an issue of social justice'.

As stated in India's first Five Year Plan (1951), 'health is a positive state of well being in which harmonious development of mental and physical capacities of the individuals lead to the enjoyment of a rich and full life. It implies adjustment of the individuals to his total environment'.

In a socialistic polity, the provision of health services naturally is the responsibility of the government. But in India, more than 57% of hospitals, 32% of hospital beds, 60% of dispensaries, and 80% of registered doctors are in the private sector (Bhat, 1996).

Evolution - Concept Health

An understanding of health is the basis of all health care. Health is not perceived the same way by all members of a community including various professional groups (e.g., biomedical scientists, social science, specialists, health administrators, ecologists etc.) giving rise to confusion about the concept of health. (Park, 2000). Health has evolved over the centuries as a concept from an individual concern to a world-wide social goal and encompasses the whole quality of life. Many programmes and policies were designed to provide health services to the people. With increasing recognition of the failure of existing health care, alternative ideas and methods to provide health care have been considered and tried. It was this background that gave way to the Alma-Ata declaration of 1978.

The Alma-Ata conference defined Primary Health Care as "essential health care based on practical, scientifically sound and socially acceptable
methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and the country can afford to maintain at the very stage of their development in the spirit of self-determination". (WHO, 1978)\textsuperscript{27}. The concept of primary health care involves a concerted effort to provide the population of developing countries with at least the bare minimum of health services.

According to Coleking (1981)\textsuperscript{28}, primary health care is both a philosophy and a strategy. Its philosophical spirit is derived from the principles it espouses, while its strategy consists of broad based activities within and beyond the health sector aimed at the improvement of health.

One of the thrust areas of Primary Health Care is Maternal and Child health. According to the widely accepted policy, the health care needs of infants, children and pregnant women, which accounts for a high proportion of all deaths (and presumably of all illness), deserve urgent attention. (Visaria and Gumber, 1994)\textsuperscript{29}

Health – The Indian Scenario

The political economy of health care services in India has various dimensions. Multiple systems, various types of ownership patterns and different kinds of delivery structures makes up a complex plurality that makes the development of an organized system difficult.(Duggal Ravi, Gangolli Leena.V, 2005)\textsuperscript{30}

The post-independence Indian health scene was guided by the Health Survey and Development Committee Report by Sir J C Bhore, better known as the Bhore Committee Report (1946). This report was strongly influenced by the British system, which evolved in the 1940s. It was this report that first used the concept of 'comprehensive care', (Park, 2000)\textsuperscript{31}, which means, the provision of integrated preventive, curative and promotional health services.
from ‘womb to tomb’ to every individual residing in a defined geographical area.

However, Monica Das Gupta and Lincoln C. Chen (1996)\(^3\) opines that, due to various reasons, the paradigm could not be successfully tried out in India due to reasons including high cost of implementation, unmatching epidemiological profile of the people, and level of knowledge of the population.

The Bhore Committee was followed by the Chopra Committee (1946) and Sokhey Committee (1948). All the three reports reflect the supremacy of modern medicine and the objective of eventually making its services available to all (Ritu Priya, 2005)\(^3\).

In India, one can make out the gradual withdrawal of the State from the provision of health services, reflected in the declining investments in public health. An attempt is also made in several states to introduce user fees for clinical services. The lower priorities for public health and the consequent neglect of preventive services and communicable disease control programs have already resulted in a higher disease burden in the country. Introduction of user fees, cost recovery mechanisms, and privatization of health care would increase the economic burden of the people. (Rajasekharan Nayar, 1998)\(^3\)

The Ministry of Health and Family Welfare, Government of India, evolved a National Health Policy in 1983. It laid stress on preventive, promotive, public health and rehabilitation aspects of health care and points to the need of establishing primary health care services to reach the population in the remotest areas of the country, the need to view health and human development as a vital component of overall, integrated socio-economic development, decentralized system of health care delivery with maximum community and individual participation. It also laid down specific goals in
respect of the various health indicators by different dates such as 1990 and 2000 AD.

The western approach to health care focuses overwhelmingly on the medical technical interventions at the expense of broader social interventions. The dominant technical approach inevitably results in medically driven, vertical and top-down initiatives, which discourage intersectoral collaboration and community involvement. Vertical programmes may be effective in specific situations and in the short term, but are ultimately ineffective at providing steady and consistent care. (Sanders, 1997)35.

The government of India had so far adopted numerous vertically oriented disease control programmes. These vertical programmes were borrowed from the west. These programmes, which are easily quantifiable and definable with most components in the planners ‘control’, gives a sense of security to most planners and were attractive to the political leaders also. (Gangolli V Leena, Rakhal Gaitonde, 2005)36. The authors, in the same article, continue to opine that these vertical programmes, work in isolation from comprehensive environmental and socio-economic improvements. However, the Indian experience has demonstrated that the vertical programs, which ignore the social, economic, and cultural realities of people’s lives, aspirations, and priorities, will never be able to fulfill the set goals of National Health Policy.

Considerable progress has been made in improving the health status of the population over the last half-century. Despite this impressive progress, many challenges remain. (Satia, Mavalankar, and Bhat, 1999)37

On the eve of the tenth five-year plan, the Draft National Policy 2001 was announced, and for the first time, a feedback was invited from the public. In 2002, the National Health Policy of 2002 was announced and the main
objective is to achieve an acceptable standard of good health amongst the general population of the country.

In India, one can make out the gradual withdrawal of the State from the provision of health services, reflected in the declining investments in public health. An attempt is also made in several states to introduce user fees for clinical services. The lower priorities for public health and the consequent neglect of preventive services and communicable disease control programs have already resulted in a higher disease burden in the country. Introduction of user fees, cost recovery mechanisms, and privatization of health care would increase the economic burden of the people. (Rajasekharan Nayar, 1998)\(^38\).

Health expenditure trends – Centre and States

The last two decades witnessed an increase in income inequality at the global level. There is an increasing consensus that the extent of income inequality, the gap between the rich and the poor in communities, has an impact on the physical, social, and mental health of its residents as well as the health of the community as a whole.

David Sanders, (1997)\(^39\), comments on the failure of governments to provide health-promoting conditions through policies that ensure greater equity. Health problems are the result of structural factors and political choices and their solution cannot lie in health care alone, but requires substantial economic reform as well as comprehensive and intersectoral health action. Mechanisms to disseminate this message, including the use of the mass media, must be identified and exploited.

If health services are to become receptive to the needs of users and effectively reduce the enormous burden of avoidable mortality and morbidity that the people of India experience, despite the availability of medical technology and expertise, conscious efforts need to be taken to build the
ability of society and health providers to identify and address issues of gender and social equity in health services. (Saha, Ravindran, T.K.S, 2002)\textsuperscript{40}

Gerald Bloom, 2000\textsuperscript{41} explores the implications for health policy of the segmentation of society into social groups with very different levels of income and wealth. He opines that government should commit to equity-enhancing health development need to increase their capacity to facilitate coalition building and manage change. It calls for an international public health legal framework that might include a definition of minimum standards of health services to be underwritten by national and international financial commitment.

While government expenditure on the health sector as a percentage of the GNP had increased in most countries by the early 1990s, the percentage devoted to local health services has been increasing in developed countries, been stagnant in developing countries, and has decreased in the least developed countries. This has resulted in the recent deterioration of services in the latter group (Sanders, 1997)\textsuperscript{42}

Access to health care with equity and universal coverage is critically linked with public financing of health care services (Duggal, Ravi, 2005)\textsuperscript{43}. Countries that have near universal access and relative equity in access to health care have organized health care systems where public financing accounts for over two-thirds of health care spending

While India lost a major opportunity of implementing a national health care system immediately following independence via the Bhore Committee (1946)\textsuperscript{44} recommendations and made very poor investments in the public health sector over the years, the mid-seventies became a turning point for major investments, especially in rural India via the Minimum Needs Programme. The 5\textsuperscript{th} and 7\textsuperscript{th} Plan periods may be regarded as the ‘Golden Era’
of public sector performance in India. The achievements made during the above mentioned plan periods in the public health sector received a setback with the economic crisis of 1991 and subsequent economic reforms which followed under the Structural Adjustment Programme (SAP) strategy commandeered by the World Bank (Duggal, Ravi, 2005)\(^4\)

The total public health care expenditure is composed of state level allocations and allocations from central government. The central sponsored programmes have been one key policy initiative of the Government of India to support the health sector programmes directly. The role of central support in state budgetary allocations is increasing and the percentage of State expenditure is decreasing in total health expenditure (Bhat, 2004)\(^4\). He opines that, as compared with these allocations, the private expenditure on healthcare is increasing. In fact in the past five six years it has grown exponentially.

A noticeable trend in public health care expenditure (PHCE) is that, around 1996 there was a sharp dip experienced by all states, which experienced a revival immediately afterwards. Ramesh Bhat, 2004 in his study suggests that at state level governments have target of allocating only about 0.43 per cent of SGDP to health and medical care. This does not include the allocations received under central sponsored programmes such as family welfare. Given this level of spending at current levels and fiscal position of State Governments the goal of spending 2 to 3 per cent of GDP on health looks very ambitious task. The analysis also suggests that elasticity of health expenditure when SGDP changes is only 0.68 which suggest that for every one percent increase in state per capita income the per capita public healthcare expenditure has increased by around 0.68 per cent.

According to Duggal, Nandraj and Vadair, (1995)\(^4\) the Bhore Committee report stated that public health expenditure was grossly inadequate right from 1940s. According to the report, per capita private expenditure on
health was Rs. 2.50 compared to a state per capita health expenditure of just Re. 0.36 which is 1/7th of private expenditures. In the 1950s and 1960s private health expenditure was 83 per cent and 88 per cent of total health expenditure respectively.

Only 17 percent of all health expenditure in India is borne by the government, the rest being borne privately by the people, making it one of the most highly privatised healthcare systems of the world (Human Development Report, 2003)48

Tulasidhar and Sarma (1993)49 did a comparative study of different states of India with respect to public expenditure, medical care at birth and infant mortality. They found that in all the states per capita real public spending grew faster than real per capita state domestic product.

Public Vs. Private Sector – The Indian Scene

The private sector plays a significant role in meeting the health care needs of the people of India. Structural adjustment programme initiated in the country has resulted in a reduction in government expenditure in the social sectors. As the government, which was a major provider of health services moves out of the health sector, the private players come in. The physical access to private sector facilities is generally better than the public sector, but their charges are prohibitive.

Recent studies on the behavior of for-profit hospitals add to the growing body of evidence that "self-referrals" lead to overuse of services and excessive cost. (Muraleedharan, V.R 1995-96)50. In addition to self-referrals, there are “deals” between physicians and the manufacturers of medical devices, and a wide variety of other kinds of joint ventures between physicians and the facilities in which they treat their patients. Defensive practices, aggressive medical culture, role of specialists, contribute to the increasing
costs of medical care. In the long run, all these factors contribute to the costs that are passed on to the consumers, namely the patients.

In the market for health care provided by the private hospital sector, given the lack of regulation on the conduct of providers in India, and given that consumers pay mostly out of pocket, two phenomena may be taking place simultaneously: (a) the poor may be paying a low price for care but at considerable risk of receiving less than appropriate level of care; and (b) the rich may be consuming more than what is necessary in the name of receiving better quality of care, thus spending more than necessary (V.R. Murleedharan*, 1995-96)51.

The phenomenon of government-employed health care providers, physicians and others, concurrently working as service providers outside of their government employment is widely observed in developing countries. They could be doing this for a variety of reasons. Increasing income is likely to be the main reason, but institutional and professional factors are probably also important. This would automatically lead to abuses or denial of care to the poor.

Government providers treat these jobs as competitive with their government work, complementary to it, or sum of both. Implications for quantity, quality, and equity differ significantly depending on how this relationship plays out. (Berman, Peter and Cuizon, Dexter, 2004)52

Bhat (1996)53, (2000)54 discusses about the importance of regulating the private sector in India and how public private partnership can bring needed resources while also taking care that the vulnerable groups – the poor and rural populations – have access to health facilities. These studies suggest that India’s dependence on private sector in healthcare is very high.
The private hospital sector in India has grown passively over the years, without any kind of state policy directing its growth and development. As a result, the private hospitals have had no incentive to follow norms either with regard to physical infrastructure (space per bed; provision of certain utilities such as drinking water, drainage facilities, elevators, and back-up power) and staffing pattern. (V.R. Muraleedharan, 1999)55

He asserts that it is difficult to regulate and moderate the private hospital sector given its reckless, unbridled growth in the past, but the government can make some positive initiatives. The primary aim of policies should be to develop a healthy relationship between the private and public health care system in the state.

Reforming the private health sector by taking appropriate policy decisions should be given urgent priority. New legislation is needed on the registration of private health care facilities and the introduction of accreditation as part of a complete reform of the private health sector. (Yesudian, C.A.K., 1999)56

Muraleedharan and Nandaraj, (2003)57, argue for government–private sector partnerships in the health field. The primary reason why the government should explore partnerships with the private sector is that the private sector is already playing a substantial role in meeting people’s demands for curative care. Another legitimate reason is the government’s concern for reducing the financial burden on the poor and ensuring that all health services are safe, high quality, and accountable to the public.

The prevalence of various undesirable practices in the private medical sector is growing. This co-exists with a lack of awareness of providers about selected important regulators. (Bhat, 1999)58. There is growing capital intensity
due to cost of location, medical equipment and technology, and financial resources of capital investment as some unfavourable environmental factors experienced by private providers. A strong need is felt for instituting and implementing an effective continuing medical education programme for practicing doctors: and linking it with their registration and continuation of their license to practice.

It is difficult to regulate and moderate the private hospital sector given its reckless unbridled growth in the past, but the government can make some positive initiatives. The primary aim of policies should be to develop a healthy relationship between the private and public health care system in the state. (Tim Ensor and Rita Dey, 2003)  

The widespread growth of the private sector and the lack of effective mechanisms to address the associated problems is making the Indian health sector more and more vulnerable to market failure problems. (Bhat, 1999)  

T K Sundari Ravindran, (2005) says that public-private partnerships may undermine the limited public sector sexual and reproductive health services that exist, and further exclude low-income populations, causing a wider chasm in health status across income groups  

V.R.Muraleedharan (1995-96) in his paper provides a description of the nature of hospital sector, with an emphasis on private hospital sector, in Madras city. The paper highlights some of the characteristics of the hospital sector, namely its size, distribution, range of services offered, manpower employed, and price differentials for outpatient care. A preliminary comparison of 35 private hospitals suggests presence of price-competition for outpatient care. The study concludes that type of ownership (within private sector) is observed to have little association with fee for outpatient care, occupancy rates, outpatients served per day, and manpower per bed employed.
Ramesh Bhat, (2000)\textsuperscript{63}, says that public-private partnerships in the health sector can bring in sufficient quantity of needed resources while also taking care that the vulnerable groups – the poor and rural populations – have access to health facilities. The government must clarify its policy towards the private sector and ensure that public spending on health does not decline. The author argues for the need to have a ‘public policy towards private sector’, the policy framework, having a sector wide (addressing both public and private sector roles together) focus. Creating a policy, which is complete and clear has to be thorough work. It should address the question of public-private mix in health sector, scope of private-public partnerships, role of subsidies and incentives in promoting these partnerships, the issue of protecting the public sector from any reduction in budgetary allocations. There is need to have explicit and adequately described statement on Public Private Partnerships (PPPs), planned coordination across various departments within the government and various implementing agencies, ensuring availability of critical resource such as qualified manpower. The need to have appropriate monitoring and governance system, provision of adequate information to all participants and transparency, institutionalising appropriate management structure to handle new tasks and strengthening public systems were discussed as necessary pre-requisites for evolving effective PPPs. The role of regulatory mechanisms to ensure proper standards of care is also considered important.

The same view is promoted in his paper in ‘Vikalpa’, (2000)\textsuperscript{64}. This paper discusses and analyses the issues and policy options in taking initiatives to invite private capital through public-private partnerships with particular reference to the health sector. In the context of shrinking budgetary support for social sectors, the paper argues that there is need to evolve a proper policy which addresses the question of public-private mix, scope of public-private partnerships, role of subsidies and incentives in promoting these partnerships and so on. The paper points out that there is need to have explicit, transparent
and adequate mechanisms which would ensure involvement of all stakeholders in the process.

**Health Economics – The Theory Behind**

Newhouse (1977)\(^{65}\) raises the question what determines the quantity of resources any country devotes to medical care. The analysis provided suggests that per capita GDP of the country is the single most important factor affecting health expenditures. The study found a positive linear relationship between fraction of health care expenditure to GDP and GDP. It is also argued that since the income elasticity of health care expenditure is greater than one. Therefore, it could be treated as a “luxury” good. Gerdtham et al confirmed to the view and found that the elasticity of health care expenditure is greater than one. (Gerdtham, Ulf., 1992)\(^{66}\) Results of Newhouse were consistent with an earlier study by Kleiman (1974)\(^{67}\).

Many other studies by Di Matteo and DiMatteo, (1998)\(^{68}\) and Mc Lauglin, (1987)\(^{69}\), found that the elasticity of health care expenditure is less than one.

Abusaleh Shariff, (2004)\(^{70}\) draws attention towards the relationship between the macro-economic growth of the country and its health status. It cannot be ascertained which is the dependent factor and which is the independent factor. It is normally believed that a fast pace of economic growth in terms of higher GDP growth is a pre-condition to improve people’s health. The other side of the argument that better health also contributes to enhancement of GDP is often not granted a consideration. The fact that health gains can be achieved through efficient allocation of scarce resources even at lower levels of national income is not well understood. The other debate found in the recent past is a close association between health situation of individuals and households and poverty. It is often found in developing economies that ill health, its acute and chronic manifestation is a dominant cause of poverty.
Most of the Governments are ready to grant autonomy to lower cadre institutions through decentralisation. However, they are bothered about their accountability and consistency with national priorities. This has led to an increase in performance measurement, including attempts to assess the efficiency of public sector organizations. (Andrew Street 2001)

Homan and Thankappan,(1999), in their study of public and private hospitals of Trivandrum district, found that, the public sector hospitals are experiencing “x-inefficiencies” and that they are producing services beyond their intended capacity. This results in higher operational costs and is likely to have negative impacts on quality of care. For the private sector hospitals, the low occupancy levels creates the opposite efficiency problem (under-utilisation). The authors suggest that the root cause for most problems seems to be misallocation of resources. They project the apprehension that the momentum of the system overwhelms the ability to focus on long-term goals and the result is a series of short-term crises. They suggest that the government must improve documentation of the medical records and additional control to monitor performance of providers.

Maternal Health and Obstetric Care

Half a million women die of pregnancy-related complications every year. A large majority of these deaths occur in developing countries where fertility rates, even though falling, continue to be high, and access to health care services is very low. (Desai,2003)

In addition to this half-million, many more suffer from long-term disability, such as chronic pain, fistula, impaired mobility, damage to the reproductive system, and infertility. Twentythree million women (15% of all pregnant women) develop life-threatening complications every year.(Engender Health,2000)
The direct physical causes of maternal death: hemorrhage, complications of unsafe abortion, sepsis/infection, hypertensive disorders (eclampsia), obstructed labor- are treatable, the efforts of the hospital to provide swift and competent EmOC, using resources effectively, can have a significant impact on pregnancy outcomes. (Engender Health, 2000)

'Guidelines for Monitoring the Availability and Use of Obstetric Services', 1997, UNICEF, WHO, UNFPA discusses the importance of monitoring the progress of different programmes towards the goals. The Guidelines proposes an approach based on the monitoring of the process or interventions as such. Evidence shows that at least 15 per cent of all pregnant women develop sudden serious complications and require life-saving access to quality obstetric services. One of the critical pathways to reducing maternal mortality is improving the accessibility, utilization, and quality of services for the treatment of complications during pregnancy and childbirth. The Guidelines suggest a series of process indicators that assess the availability, use and quality of obstetric services and provide guidance on data collection and interpretation, which would, ultimately contribute to policy making and implementation.

Woman’s ill health can get reflected in multiplied proportions in the health of the nation. (World Bank, 1996) There is excess female mortality in India during childhood and in the prime child bearing ages, and the high levels of maternal mortality.

Maternal mortality is a big problem in India. In his paper, Bhat (2000), tries to present estimates of maternal mortality derived from the sisterhood method. The author says that policy initiatives often rest on judgments made on the basis of study of a small, selective cross-section of the population, which is not accurate. The Maternal mortality rate, in 1994, for rural India is estimated to be 544 deaths per 100,000 births in rural India for a
period roughly 12 years before the survey. It also shows that maternal mortality ratio was more than 600 in east and north-central India, while it was between 300 to 400 in north-western and southern India. The survey results also show that maternal mortality levels were high among scheduled tribes and scheduled castes, and surprisingly low among Muslims. The level of maternal mortality is also strongly related to amenities and infrastructure available in the village.

In terms of choice of provider for reproductive health care, a preference for traditional dais (traditional birth attendants or TBAs) for delivery care is indicated by many studies. The low cost of services appears to be an important consideration. (Saha, Ravindran, T.K.S, 2002)79.

Under the Constitution of India, health is a State subject and each State has its own health care delivery system, developed on the basis of the overall framework provided by the Bhore Committee (1946)80. In the case of reproductive health, the Center is responsible for program design and monitoring while the States are responsible for its implementation. (Varatharajan, 2003)81

Maternal mortality and morbidity remain as one of the major health problems in India. Most of the reproductive health care in India is provided by the private sector. Costs of delivery services in private nursing homes and hospitals are around 70 percent higher than in public facilities. Regulation of the private sector is minimal. (Tim Ensor and Rita Dey, 2003)82 The authors assert that an act to license private hospitals, nursing homes and clinics has been passed but is not yet implemented. Regulation tends to seek to suppress the undesirable rather than support and encourage better practice.
For all practical purposes 'all pregnant women are at risk of serious obstetric complications', and so emergency obstetric care is critical to lowering maternal mortality. (Maine, 2003)\(^83\)

Quality Emergency Obstetric Care (EmOC) involves a state of readiness that will enable you and your team to respond appropriately to obstetric emergencies in a way that fulfills the needs and rights of your clients.

India, like other underdeveloped countries, is characterized by low levels of institutional deliveries. But the State of Kerala is an exception. In Kerala, 97.1% of the deliveries are institutional in nature. Of this, more than 58% of deliveries take place in private hospitals and around 39% take place in public health care facilities. Even though there is around 100-150% difference in the cost of maternity care in a private facility as compared to the public facility, people generally opt for only private facility here. (Kunhikkannan and Aravindan, 2000)\(^84\) Standard models of hospital behavior, discussed by Leemore, (2003)\(^85\), predict that hospitals will respond to a diagnosis-specific price increase by raising the intensity of care provided to patients in that diagnosis.

**Kerala- A State With A Difference**

Joseph Tharamangalam, (1998)\(^86\), explores the social, political, and cultural roots of the paradox called "Kerala Model", and tries to prove that economic stagnation can be seen to be inherent in the very pattern of Kerala's social, political, and cultural development. In particular, it draws attention to a pattern of state, politics, and society that may have undermined the autonomy and rationality of institutions of civil society, and a pattern of political and cultural discourse that may have undermined the basis of innovation, at least in certain domains of society and culture.
The spread of hospitals and other health facilities in Kerala is far better than the availability of the same facilities in India. Kerala stands out as a State with a large supply of hospitals and hospital beds relative to its population (5.3 and 3.3 times the all India ratio in 1991). This well-developed hospital sector is especially striking given the state’s overall level of economic development. (Holman and Thankappan, 1999)87

The State of Kerala with a per capita income of around 1% of that of the wealthiest countries, has achieved good health comparable to theirs. The infant mortality rate for Kerala in 2000 was 14/1000 live births compared with 7/1000 for the USA (Thankappan, 2001)88

Kerala is well known for ‘Good Health at Low Cost’. This achievement is attributable to political and social commitment to equity, education for all, equitable distribution of health facilities, and an assurance of adequate calorie intake. (Werner and Sanders, 1997)89. But, now it is felt that globalization is challenging the foundations of the Kerala model of low cost health care, which is built on distributive justice. (Thankappan, 2001)90

Advantages apart, there are certain critical gaps in infrastructure, manpower, equipment and drugs that make government health care system unable to meet the rising health care demand of the health-wise over-conscious State. (Var atharajan et al, 2002)91

Varatharajan et al, (2002)92, attempted to quantify the unutilized/underutilized capacity among the public hospitals in Kerala with an overall objective of suggesting ways and means to reactivate the unutilized/underutilized capacity. The importance of variables such as bed occupancy rate, patient contacts/day, number of inpatients per doctor and admissions per doctor in the determination of efficiency of a hospital as an institution engaged in an economic activity are asserted in the study. The study found out the
existence of a large untapped potential of major hospitals inputs such as land, building space, beds and manpower among the government hospitals in Kerala. The reasons for the existence of idle capacity were identified as unfavourable bed--doctor and bed--nurse ratios, undesirable access characteristics such as poor facility hours, insufficient funds for maintenance, inadequate and inappropriate utilization of staff, especially the specialists and technically skilled staff.

The fiscal turmoil in the 1980s left its mark in the health sector of the state (health being a state subject, the impact was even more specific of the state's fiscal stability). Government health expenditure has increased whenever fiscal deficit has increased and vice versa due to an increase in the salary component leading to a cut back on supplies and maintenance, leading to a deterioration of the introduction of sophisticated methods of treatment in public sector facilities. (Kutty, 1999)\textsuperscript{93}

In the context of increase in Government expenditure failing to improve health care access to people, an increase in budgetary allocation for improving health care system is a necessity. (Varatharajan, 2004)\textsuperscript{94}

The widely acclaimed Kerala Model of Health has started showing a number of disturbing trends recently. Hence, the Kerala situation is described as 'Low Mortality High Morbidity Syndrome'. (Panicker and Soman, 1985)\textsuperscript{95}

Public Health System is getting alienated from the people and only 30% of the people even from the lower income group seek medical help from the Government hospitals. This is because of the fall in the quality of services at the Government hospitals. The perceived inefficiency of the Government medical facilities is one of the factors that provided the impetus for the growth of the private medical care set up in the state. This environment of the perceived inefficiency of the Government medical facilities is one of the
factors that provided the impetus for the growth of the private medical care set up in the state. (Ekbal, 2000)  

Only around 28% of the acute illness cases are reported to the government hospitals for treatment. Of the rest, 58% seeks health care from the private institutions and around 5% goes to co-operative and other medical institutions. In Kerala, 97.1% of the deliveries are institutional in nature. Of this, more than 58% of deliveries take place in private hospitals and around 39% take place in public health care facilities. (Kunhikkannan and Aravindan, 2000)  

In Tamilnadu also, there exists a similar situation of underutilization of public sector health services. In Tamilnadu, public health care sector is unable to treat even those who report at the health centers. This can be construed as a signal to indicate inefficiency because the core of mutable factors influencing the utilization stems out of supply side efficiency. (Wensing et al, 1998). The persistent failure of the public health care system to provide efficient service to the people has already led the people to believe that the public sector and efficiency are mutually exclusive. (Varatharajan, 2003)  

The low level of utilization of government sponsored health services could be due to the low quality of health care services offered. Quality can be assessed from the point of view of the users (perceived quality) or by using technical standards (quality defined by professionals). (Christoph, Kaspar, Deo, Marcel, 2003)  

Hospital Efficiency studies  

Efficiency in general economic terminology means absence of waste, or using the resources as effectively as possible to satisfy people’s needs and desires (Samuelson and Nordhaus, 1992).
It may be efficient for a country to carry on with what appear to be inefficient activities. Due recognition that ours is not a full-employment economy implies that policy measures have to be scrutinised for their short and long term effects on output and employment profiles. This scrutinisation may dictate, for the production of any good, the use of a combination of production techniques rather than one 'efficient' technique, a combination of activities rather than one 'efficient' activity. (Patnaik, 2003)102

Performance measurement is an important tool for any organisation that wants to know what it has been doing, whether it meets expected standards and objectives or how it fairs in comparison to similar organisation in the same arena (Justin,2000).103 However in the case of hospitals, it is necessary to conceptualise what is actually involved in hospital performance and attention is drawn to an integrated holistic framework of organizational inputs, structures, processes and outcomes.

An efficient health service is one that achieves its objectives at the least cost. The efficient production of health services is necessary, though not sufficient, for achieving broader social efficiency. The idea of an “efficient” health facility is derived from the neoclassical production model in which agents choose inputs to minimise cost, given exogenous demand. (Aparnaa, Hanson, Dorabawila, Perera, 2000)104

However, cost-minimisation is only one among many possible objectives of the public sector. Lovell (1993)105 cites the argument made by Pestieau and Tulkens (1990)106 that, due to differences in objectives, public and private providers should only be compared on the criterion of productive (i.e., technical) efficiency because it is “the only objective shared by both types of producer and the only objective not in conflict with other goals of the public producer”.

88
Technical efficiency implies producing maximum output with given inputs; or equivalently, using minimum inputs to produce a given output. Technically efficient production units are located on the production isoquant. (Aparnaa, Hanson, Dorabawila, Perera, 2000)\(^\text{107}\)

Jaume Puig, Eulàlia Dalmau, (1997)\(^{108}\), examined the potential effect of market structure on hospital technical efficiency as a measure of performance controlled by ownership and regulation. The results of the study suggest that the number of competitors in the market contributes positively to technical efficiency and there is some evidence that the differences in efficiency scores are attributed to several environmental factors such as ownership, market structure, and regulation effects. The study concludes that regulated competition possibilities may be limited by market dimension and concentration level.

Ravi and Aparnaa Somanathan, (1999)\(^{109}\) concluded that high bed-occupancy rates and turnover rates suggest the problem is more of under-capacity than oversupply, which reinforces the case for expansion of smaller facilities. In their study of the four groups of Ministry of Health and Family Welfare facilities, additional changes to increase the ratio of nurses to doctors, and reduce the numbers of Class 4 employees in THCs (Thana Health Complexes, the smallest unit in the four-tier health facilities) might also help reduce average costs in delivering health services. The findings suggest that large THCs with more beds, but similar budgets and staffing than now would be more optimal and efficient.

Peter C Smith, Andrew Street, (2003)\(^{110}\), talk about the use of statistical tools such as data envelopment analysis (DEA) and stochastic frontier analysis (SFA) to indicate organisational efficiency of public sector organisations. In applying DEA, analysts can explore different scaling assumptions, partition estimates to measure the form that inefficiency takes, and bootstrap estimates
To assess statistical significance. SFA allows the analysts to test different functional forms, to test different distributions of inefficiency, and to calculate confidence intervals around inefficiency estimates.

Data Envelopment Analysis (DEA) is an innovative method that is particularly suitable for measuring performances of service organizations. DEA has also been acclaimed as a leading edge method that supports benchmarking, continuous improvement, and strategic analysis. DEA is a special application of linear programming. In recent years, it has become an increasingly valuable tool for making provider comparison. (Odeck.J, 2000)

Miika Linna and Unto Häkkinen, (1998), investigated various factors explaining the technical, allocative and cost efficiency of Finnish hospitals using parametric frontier models and nonparametric DEA models. DEA scores were correlated to the same set of variables as efficiency scores by stochastic frontier models. Specialization, specialization in expensive DRGs, sufficiently high proportion of resident physicians and increasing the relative share of physician input contributed to efficiency. In addition, some evidence of decreasing returns to scale was found.

Theoretical Framework

This section provides an idea about the theory of health economics, which explains the various concepts relevant to the topic of interest.

Health economists take the view that creation and maintenance of health involves a production process. As a firm uses various inputs, such as capital and labour, to manufacture a product, an individual uses medical inputs and other factors, such as lifestyle, to produce health. The relation between medical inputs and output can be captured in a production function.

Health = H (Profile, Medical care, Lifestyle, Socioeconomic status, Environment)
Here, health reflects the level of health at any point of time; profile captures the individual's mental and physical profile as of a point in time; medical care equals the quantity of medical care consumed; lifestyle represents a set of lifestyle variables such as diet and exercise; socioeconomic status reflects the joint effect of social and economic factors, such as education and poverty; and environment equals a vector of environmental factors, including air and water quality.

But health is fundamentally different from other goods that people want, and the difference is rooted in biology. As eloquently expressed by Jonathan Miller, "Of all the objects in the world, the human body has a peculiar status: it is not only possessed by the person who has it, it also possesses and constitutes him. Our body is quite different from all the other things we claim as our own. We can lose money, books and even houses and still remain recognisably ourselves, but it is hard to give any intelligible sense to the idea of a disembodied person. Although we speak of our bodies as premises that we live in, it is a special form of tenancy: our body is where we can always be contacted". The person who seeks health care is of course a consumer - as with all other products and services - and may also be a co-producer of his or her health, in following good habits of diet, hygiene and exercise, and complying with medication or other recommendations of providers. But he or she is also the physical object to which all such care is directed. Health, then, is a characteristic of an inalienable asset, and in this respect it somewhat resembles other forms of human capital, such as education, professional knowledge or athletic skills. But it still differs from them in crucial respects. It is subject to large and unpredictable risks, which are mostly independent of one another. And it cannot be accumulated as knowledge and skills can. These features are enough to make health radically unlike all other assets which people insure against loss or damage, and are the reason why health insurance is more complex than any other kind of
Insurance. The impossibility of replacing the body, and the consequent absence of a market value for it precludes any ceiling on health costs.

Health care is an expression of concern for fellow human beings. It is defined as a "multitude of services rendered to individuals, families or communities by the agents of health services or professions, for the purpose of promoting, maintaining, monitoring or restoring health" (Last, J.M 1983)\textsuperscript{113} Such services might be staffed, organized, administered and financed in every imaginable way, but they all have one thing in common: people are being 'served', that is, diagnosed, helped, cured, educated and rehabilitated by health personnel. In many countries, health care is completely or largely a government function.

Health care includes medical care. Medical care is a subset of health care system. Medical care is composed of myriad of goods and services that maintain, improve, or restore a person's physical or mental well being. (Santerre and Stephen, 2000)\textsuperscript{114} Because of the heterogeneous nature of medical care, units of medical care are very difficult to measure precisely. Units of medical care are also hard to quantify because most represent services, rather than tangible products (goods). Goods are normally tangible (can be measured), separable (exist as specific units), pliable (can be stocked), and exhibit similar characteristics. As a service, medical care exhibits the four '1's that distinguish it from a usual 'economic good' – Intangibility, Inseparability, Inventory and Inconsistency.

The first characteristic, intangibility, means a medical service is incapable of being assessed in five senses. Unlike a new car or a new music system, the consumer cannot see, smell, taste, feel or hear a medical service.

Inseparability means the production and consumption of a medical service take place simultaneously. In addition, a patient acts as a producer and
Consumer simultaneously. Without patient's active participation, the medical product is likely to be poorly produced.

*Inventory* is directly related to inseparability. Because the production and consumption of a medical service occur simultaneously, health care providers are unable to stockpile or maintain an inventory of medical services.

Finally, *inconsistency* means the composition and quality of medical services consumed vary widely across medical events.

These characteristics peculiar to medical care makes it a unique service. As a result of the same reason, the measurement of related phenomena of supply and demand of health services become rather difficult.

**Health - A Commodity**

Health, as a commodity, has an abnormality. It exhibits three distinctly different characteristics — those of public, merit and private goods. Most of public health and preventive measures are public goods. Merit goods comprise services such as family planning and certain primary care services whose consumption produces greater social benefit than private benefit. Another type of merit good, such as vaccination, produces externalities. A third type of merit good, includes services such as emergency services for trauma patients and medical services to relieve acute pain and basic health services to vulnerable people possessing significant interpersonal utility value. Finally, merit goods also include services where individuals lack sufficient education or rationality to make rational consumption decisions. For example, many people significantly discount preventive services that produce future benefits. As for private goods, most of the curative medical services and drugs fall in to this category. Hence, only private goods have certain market characteristics.

(D.Varatharajan,2004)
Health care can be a luxury for the section of the people belonging to lower socio-economic class. Whether healthcare is a luxury or necessity is very important from the point of view estimating future expenditure on healthcare. This is so because if health care is a luxury product it will consume an ever-increasing share of national income. It also has implications for the link between healthcare expenditure and economic well being.

Demand for Medical Care

Grover C. Wirick has identified five fundamental factors that can have an impact on demand for health services. The first is need. Second, there must be a realization of need. Third, financial resources must be available to implement the care. Fourth, there must be a specific motivation to obtain the needed care. Fifth is the availability of service. The first three forces are characteristics of the patient, while the fifth is a phenomenon of his environment. The fourth force is somewhat indistinct and could be a characteristic of either or both.

Medical care is an all-important component of health services. Demand for medical care is a derived demand and depends on the demand for health and extent to which medical care influences the production of health. The relation between medical care and health is far from exact. That is because of lack of medical knowledge concerning the efficacy of certain types of medical intervention. As a result, health care providers disagree about the treatment of some types of medical problems, and the demand for medical services become fuzzier.

In some cases, consumers may lack information or medical knowledge they need to make informed choices. Consequently, consumers tend to rely heavily on the opinion of the doctor and ultimately, the doctor ends up making the choice of medical service. All these factors make impossible the accurate delineation of the relation between the price and quantity demanded for
medical care. In other words, the relation between the price and the quantity demanded is rather fuzzy. The demand – price relation is depicted by the shaded region in figure 2.1.

Figure 2.1
Demand – Price Relation

Source: Rexford and Stephen, 2000

Health – Elasticity of Demand

Despite a wide variety of empirical methods and data sources, the demand for health care is consistently found to be price inelastic. Although the range of price elasticity estimates is relatively wide, it tends to center on – 0.17, meaning that a 1 percent increase in the price of health care will lead to a 0.17 percent reduction in health care expenditures. The price-induced changes
demand for health care can in large part be attributed to changes in the probability of accessing any care rather than to changes in the number of visits once care has been accessed. In addition, the studies consistently find lower levels of demand elasticity at lower levels of cost sharing. The demand for health is also found to be income inelastic. The estimates of income elasticity of demand are in the range of 0 to 0.2. The positive sign of the elasticity measure indicates that as income increases, the demand for health care services also increases. The magnitude of the elasticity, however, suggests that the demand response is relatively small. Studies based on long time series data tend to report higher income elasticities. The difference in estimates across time frames is due to the incorporation of the effects of changes in medical technology in studies that use long time series of data.

Just as no two individuals are the same, the health of two individuals cannot be the same. So, some essential features that help gauge the individual's health status are accepted as general measures of health. Generally normal measures of health like infant mortality rate, death rate, morbidity etc. are more or less not very different for similar kind of countries (for example in OECD countries). But health care spending may differ more than these normal measures. There can be a case that marginal utility of health care expenditure can be very low. This comes out from the Engel's curve * and Engel's law* (*, ** - Refer Notes at the end of the chapter)

Newhouse (1977)\(^{116}\) argued that since the income elasticity of health care expenditure is greater than 1 therefore it could be treated as a “luxury” good. This raised a major debate in the literature that whether health care is luxury or necessity. Literature gives a contrasting view of the elasticity of health care expenditure with respect to income.( Bhat, 2004)\(^{117}\)
Some studies (like Newhouse, 1977\textsuperscript{118}; Gerdtham \textit{et al.}, 1992\textsuperscript{119}) found the elasticity greater than one while many other studies (McLau gin, 1987\textsuperscript{120}; Di Matteo and Di Matteo, 1998\textsuperscript{121}) found elasticity much less than one.

Getzen (2000)\textsuperscript{122} in his paper analyses the literature and concludes that health care is neither "a necessity" nor "a luxury" but "both" since the income elasticity varies with the level of analysis. With insurance individual income elasticities are typically near zero while that of nations is mostly more than one.

In general higher the level of aggregation higher is the income elasticity of health care expenditure. However, the empirical evidence does not sustain this claim. A possible explanation for this result is the presence of an aggregation problem, in the sense that most of the studies in this area have focused exclusively on the analysis of health expenditures. If we segregate both private and public healthcare expenditure and then try to calculate their elasticity then the puzzle of elasticity might be solved.

\textbf{Health Care System}

Health care system is intended to deliver health care services. A health care system consists of organisational arrangements and processes through which a society makes choices concerning the production, consumption and distribution of health care services. It constitutes the management sector and involves organizational matters, e.g., planning, determining priorities, mobilizing and allocating resources, translating policies into services, evaluation and health education. The aim of a health system is health development—a process of continuous and progressive improvement of health status of a population.

How a health care system is structured is important because it determines who actually makes the choices concerning the basic questions,
such as what medical goods to produce and who should receive the medical care. At one extreme, the health care system may be structured in such a way that choices are decided by a centralized government, or authority, or through a single individual or an appointed elected committee. At other extreme, the health care system might be decentralized. For example, individual consumers and health care providers, through their interaction in the market place, may decide the answers to the basic questions. Determining the best structure for a health care system involves quantifying the value society places on a number of alternative and sometimes-competing outcomes, such as choice, innovation, uniformity, and production efficiency, among other things. (Rexford and Stephen, 2000)\textsuperscript{123}

**Health Systems – The Performance Gap**

Health systems have played a part in the dramatic rise in life expectancy that occurred during the 20th century. They have contributed enormously to better health and influenced the lives and well being of billions of men, women and children around the world. With some degree of regulation by the state – their performance could be largely left to markets, just as with the provision of most other goods and services.

Today and every day, the lives of vast numbers of people lie in the hands of health systems. From the safe delivery of a healthy baby to the care with dignity of the frail elderly, health systems have a vital and continuing responsibility to people throughout the lifespan. They are crucial to the healthy development of individuals, families and societies everywhere. Health systems are defined as comprising all the organizations, institutions and resources that are devoted to producing health actions. A health action is defined as any effort, whether in personal health care, public health services or through intersectoral initiatives, whose primary purpose is to improve health. Health systems thus have three fundamental objectives.
These are:

- Improving the health of the population they serve;
- Responding to people's expectations;
- Providing financial protection against the costs of ill health.

Because these objectives are not always met, public dissatisfaction with the way health services are run or financed is widespread, with accounts of errors, delays, rudeness, hostility and indifference on the part of health workers, and denial of care or exposure to calamitous financial risks by insurers and governments, on a grand scale. Because better health is the most important objective of a health system, and because health status is worse in poor populations, one might assume that for a low-income country, improving health is all that matters. Concern for the non-health outcomes of the system, for fairly sharing the burden of paying for health so that no one is exposed to great financial risk, and attending to people's wishes and expectations about how they are to be treated, would then be considered luxuries, gaining in importance only as income rises and health improves. But this view is mistaken, for several reasons. Poor people, as indicated earlier, need financial protection as much as or more than the well-off, since even small absolute risks may have catastrophic consequences for them. And the poor are just as entitled to respectful treatment as the rich, even if less can be done for them materially. Moreover, pursuing the objectives of responsiveness and financial protection does not necessarily take substantial resources away from activities to improve health. Much improvement in how a health system performs with respect to these responsibilities may often be had at little or no cost. So all three objectives matter in every country, independently of how rich or poor it is or how its health system is organized.

It can be noted that

- While health systems account for much health progress through time, that progress is far from uniform among countries at any one time, even
among countries with similar levels of income and health expenditure; and

- Second, by recognizing that the errors of the system diminish but do not offset the good it accomplishes.

Indeed, alternative health care systems exist throughout the world because people place different values on each of the various outcomes (Reinhardt, 1996)¹²⁴ Health care systems are huge, very complex, and constantly changing as they respond to economic, technological, social, and historical forces. The vastness and complexity of health care systems often confuses a layman. Figure 2.2 represents a health care system.

The diagram shows the three major players in the health care system: patients or consumers, health care providers or producers, and third-party payers or financial intermediaries. The figure also illustrates the three elements common to all health care systems – financing, reimbursement, and production or delivery. In a typical market transaction, only the bottom flow of the money paid out and services rendered takes place between the individual customer and the producer.

In a medical market, the corresponding situation is a pre-specified patient fee paid directly to the doctor or a hospital for pre-determined and expected quantity and quality of medical services. In the case of medical services, however, the transaction is often not anticipated, and the price, quantity and quality of medical services are not known until after the medical event occurs. The transaction is unanticipated because medical illness occurs irregularly and unexpectedly. (Arrow, 1963)¹²⁵
The price, quantity and quality of medical services are not known initially because much uncertainty surrounds the diagnosis and proper treatment of a medical problem. In addition, healthcare providers possess a greater amount of information relative to patients regarding the provision of medical services, giving rise to an asymmetry of information. Because no simple relation exists between diagnosis and treatment, and much is left to the discretion of health care providers, possibilities of opportunistic behaviour arise. That is, health care providers may produce more treatments or a higher quality treatment than
economic considerations warrant. This is a clear case of supplier induced demand theory.

Market For Health

Underlying any market definition is an effort to identify the constraint on providers. In this specific case, where the market of health is concerned, the relevant product market consists of those services and products that enable sellers to exercise their monopoly power and that prevent buyers from switching to substitutes provided by others. Defining the product market for hospital health care is difficult because it is essentially unique to each consumer, as each patient needs treatment specifically tailored to his/her illness.

In the competitive model of the market, economic agents are assumed to be perfectly informed about the prices and quality of all goods and services in the market place. The assumption presupposes that information is a free good that can be acquired without expending resources. But acquiring information, just like purchasing any good or service, comes at a cost. It sometimes might include a price or a time cost. Because acquiring information has a cost, most people find it efficient to possess less-than-perfect information about goods and services. That is, they prefer to be rationally ignorant. The basic reason for this is imperfect consumer information. Consumers are found to be more ignorant and uncertain in their role as consumers of health services than as purchasers of most other commodities. Consumers also generally lack knowledge concerning their actual need for care. Except for some obvious conditions such as pain, bleeding, or impaired abilities, individuals do not frequently recognize symptoms of illness or realize the consequences of failing to obtain prompt treatment. The overall benefit of health services is generally uncertain from the consumer's point of view and the demand for a sizable fraction of health services is based on doctor's judgment.
In the competitive model of market, the firm is a price taker because it lacks the ability to influence the market price. Although the health services industry can be considered in terms of the industry inputs, it is often appraised in terms of industry output. One measure of the output medical care is the effectiveness of the health industry which, is expressed by selected indicators of health levels such as mortality rates - either age-specific or age-adjusted, life expectancy at birth, morbidity rate/pattern etc.

Creation and maintenance of health involves a production process. As already discussed,

Health = H (Profile, Medical care, Lifestyle, Socioeconomic status, Environment)

Health reflects the level of health at any point in time. As a good, health is desired for consumption and investment purposes. From a consumption perspective, an individual desires to remain healthy because she or he receives utility from an overall improvement in the quality of life. Stock of health can be treated as a durable good that generates utility. Medical care indirectly provides utility by improving health and quality of life. Specifically, medical care helps to produce health, which in turn generates utility. Consequently, utility can be specified as a function of quantity of medical care. This 'quantity' of medical care essentially involves not just the availability of doctors, beds or skilled assistants. It can be viewed as a combination of availability, accessibility and also awareness/information regarding the services available.

Quantity of medical care demanded is considered to be the function of out-of-pocket price, real income, time costs, prices of substitutes and compliments, tastes and preferences, profile, state of health and quality of care. Of these determinants, tastes and preferences and profile have a bearing on the
level of awareness/information of the individual demanding health care whereas
the rest are directly related to the accessibility and availability factor.

\[ \text{Quantity demanded} = f \text{ (out-of-pocket price, real income, time costs,}
\]
\[ \text{prices of substitutes and compliments, tastes and}
\]
\[ \text{preferences, profile, state of health, quality of care)} \]

The demand for medical care will be high for an informed population. The high demand will induce higher levels of production and supply of
goods in a competitive market and the health of the population, as such will
be improved. This is well exemplified by the health status of Kerala. Studies
have shown that more educated populations tend to have better health than less
educated ones, even at the same levels of income, expenditures for medical
care, and other variables.

Choice Of Health Care Provider And Competition In The Health Market

Health seeking behaviour may be defined as any activity undertaken by
individuals who perceive themselves to have health problem or to be ill, for
the purpose of finding an appropriate remedy. An imminent offshoot of health
seeking behaviour is the choice of health provider. The consumer is generally
confused with the choice of a host of providers - the Government, private for
profit and the private non-profit providers.

For analytical purposes it would be convenient to classify hospitals according
to:

1. Ownership:
   - Public (General hospitals, hospitals under state and central
government insurance schemes)
   - Private: this can be divided into two categories, namely for-profit and
not-for-profit hospitals (the former can be further divided into sole
proprietor, partnership, or corporate (private or public limited
company). Many of the not-for-profit hospitals in India are also called "voluntary" hospitals.

1. Specialties offered; and
2. Bed size.

With the existing data source we can separate the government from governmental hospitals, but we cannot tell the specific organizational forms of those in the private sector. Similarly, we can classify them according to bed size, but we cannot simultaneously classify them according to ownership and specialties. (Muraleedharan, 1995-96)

As Thomson (1994) points out, hospitals in competitive environments (such as in the US and India) engage in certain "competitive strategies and tactics" in order to increase their market share. (Thomson, 1994) Since conceptually it is difficult to distinguish competitive strategy from tactics, all competitive means can be called strategies. Competitions for physician allegiance, institutional payers for care (so that they can have a share of 'captive patients' for different services), form different types of strategies adopted.

Hospitals in competitive market environments (as seen in the US) are also known to engage in certain other competitive strategies (what Thomson calls "tactics") in order to increase their market share. These include price and non-price competitive tactics. The latter includes measures to convey quality of services and the diverse range of services they offer under one setting, conveying a sense of "comprehensive service package" they can provide to the patients. This is supposed to create an impression on the patients that various forms of care could be obtained in the same hospital setting, thereby avoiding as far as possible the inconvenience of moving from one setting to another when they are ill. (Muraleedharan, 1995-96). These tactics are applicable only in the case of private hospitals, as public hospitals are not there for competition.
Theoretically private hospitals could engage in price and non-price competitive tactics in order to increase their market share. One of the non-price competitive behaviors refers to the range of services offered. This has a direct appeal to the patients. It creates an impression that hospitals can cater to different health care needs of the patients in one location. An analysis of the range of services also gives an idea about how the providers view the market for different types of care and how they position themselves in competitive environments.

Growth of Private Sector

The present day medical care is, we can say 'physician-driven'. There is a general consensus among scholars that technological change substantially contributes to the increasing costs of medical care. What is not so readily agreed upon is the extent to which new medical technologies in a competitive market environment have influenced physicians' behavior against the interests of their patients, and how far this has resulted in higher costs of care. The general debate on whether and to what extent we should rely on market forces in delivering medical care is bound to continue, perhaps more intensely so in future. While investor-owned (for-profit) hospitals are increasing in numbers, physicians are also increasingly becoming the owners of health care facilities (no official data are available as to how many of the private hospitals are owned by physicians in India, but it will be safe to say that the number is very substantial). Thus, on the one hand, questions have been raised from various quarters that cast doubts on the physicians' role in increasing costs of care, while on the other hand it has become more and more difficult to evaluate medical technologies. It is seen that technologies under certain competitive market conditions, because of the inherent difficulties in assessing their benefits and costs, provide scope for physicians to overuse medical procedures and thus contribute to increases in the costs of medical care.
It has been identified through recent studies that another contributing factor to the cost hike in private sector is the 'phenomenon' of "self-referrals", which, leads to overuse of services and excessive cost. ("Self-referral is the term used to describe a physician's referral of patients to an outside facility in which he or she has a financial interest but no professional responsibility." In other words, the for-profit hospitals have been successful in generating higher net income for their owners, not by operating less expensively but by virtue of charging more per admission. (Muraleedharan, 1995-96)

Growth in private health care has often resulted in: the shifting of costs to households by increasing cost sharing; in priority setting decisions about the choice of services (or packages of care) to be publicly funded; and in the creation of competing private insurance schemes and informal payment mechanisms. Because of differential ability to pay, all these new financing approaches undermine equity-oriented health policies. These initiatives, together with the lack of human and other resources from an under funded public sector, have led to the rapid growth of private health care and have further aggravated inequity in the distribution of public services, leaving increasing numbers of poor people with little or no access to health care. (David Sanders, 1997)

Failure In Service Delivery

"The fact that ill health reinforces poverty is less understood than the view that poverty causes ill health" (Shariff, 1999b). Since the poor are condemned to live in their bodies just as the rich are, they need protection against health risks fully as much. In contrast, where other assets such as housing are concerned, the need for such protection either does not arise, or arises only in proportion to income. This basic biological difference between health and other assets even exaggerates forms of market failure, such as moral hazard and imperfect and asymmetric information that occur for other goods and services. Directly or indirectly, it explains much of the reason why
Markets work less well for health than for other things, why there is need for a more active and also more complicated role for the state, and in general why good performance cannot be taken for granted.

Citizens and governments can make services that contribute to human development work better for poor people—and in many cases they have. But too often services fail poor people. Services are failing because they are falling short of their potential to improve outcomes. They are often inaccessible or prohibitively expensive. But even when accessible, they are often dysfunctional, extremely low in technical quality, and unresponsive to the needs of a diverse clientele. In addition, innovation and evaluation—to find ways to increase productivity—are rare. The major fronts of failure of service are explained below.

Affordable Access to Services is Low—Especially for Poor People

In many of the poorest countries, access to schools, health clinics, clean water, sanitation facilities, rural transport, and other services is limited. The exact relationship between use of services and prices or family income varies, but for poor people, lower incomes and higher prices are associated with less use. Poor people spend a lot of their money on services, seventy five percent of all health spending in low-income countries is private, while this is fifty percent in middle-income countries. Based on government sources, these broad aggregates are probably underestimates, hiding the heavier burden on poor people. And poor people often need to pay more for the same goods.

Quality—A Range of Failures

Lack of access and unaffordability are just two ways services fail. In low- and middle-income countries alike, if services are available at all they are often of low quality. So, many poor people bypass the closest public facility to go to more costly private facilities or choose better quality at more distant
Public facilities. One result: underused publicly funded clinics. When quality improves, the demand for services increases—even among poor clients.

Services are Often Dysfunctional

Ensuring that positions are filled, that staff reports for work, and that they are responsive to all their clients is a major challenge. The more skilled the workers, the less likely they are to accept a job as a teacher or a health worker in a remote area. A recent study in Bangladesh found 40 percent vacancy rates for doctor postings in poor areas. In the district of Ernakulam itself, 18% vacancy rate for assistant surgeons and 33% vacancy rate for Grade II nursing superintendent. Even when positions are filled, staff absence rates can be high. In random visits to 200 primary schools in India, investigators found no teaching activity in half of them at the time of visit. Staff alone cannot ensure high-quality services. They also need the right materials—books in schools, drugs in clinics. By itself, the availability of drugs in a health facility is an ambiguous measure of quality: stock outs could be caused by high demand. But when medicines are lacking in clinics and available on the black market, as is often the case, something is amiss.

When staff report to work—as many do conscientiously—and when complementary inputs are available, service quality will suffer if facilities are inadequate or in disrepair. Another problem is corruption in various forms. Surveys in eleven Eastern and Central European countries found that the health sector as one of the most corrupt sectors.

The Technical Quality of Services is Often Very Low

Services also fail poor people when technical quality is low—that is, when inputs are combined in ways that produce outcomes in inefficient, ineffective, or harmful ways. For example, health workers with low skills give the wrong medical advice or procedure. Gross inefficiency was identified as the reason for soaring expenditures in a hospital in the Dominican Republic.
Services also fail in the interaction between provider and client. Clients are diverse: they differ by economic status, religion, ethnicity, gender, marital status, age, social status, and caste. They may also differ in the constraints on their time, their access to information and social networks, or their civic skills and ability to act collectively. The inequalities between these groups are mirrored in the relationship between clients and providers. The “social distance” between providers and their clients can be large. (A doctor, who is usually born and brought up in an urban location is more likely to feel himself wasting his life when he gets a rural posting.) Services must be relevant—filling a perceived need—or there will be little demand for them.

**Little Evaluation, Little Innovation, Stagnant Productivity**

In most settings there are few evaluations of new interventions, and so no effective innovation and improvement in the productivity of services. Evaluating innovative service arrangements—such as new forms of accountability—is rarer still. If systems don’t build in ways of learning about how to do things better, it should be no surprise when they stagnate. Relying on research from other countries, while useful, is not enough. Finding out how a particular intervention works in each country setting is crucial, since history, politics, and institutions determine what works, what doesn’t, and why.

**Making Services Work to Improve Outcomes**

Many of the aspects of provision of public goods discussed so far describe failures in the public sector’s provision of services. But this is not an exhaustive list of aspects. The 20th century has seen enormous improvements in living standards. Life expectancy has improved dramatically in nearly every country.

**Public Responsibility – The Need for Government Intervention**

The responsibility that governments take on for basic health and education can be discharged in many ways—among them, fostering economic
growth, increasing public spending, and applying technical interventions. Economic growth, though a major determinant of human development outcomes, would need to be substantially faster than it has been in most countries to make dramatic improvements through that channel alone. Public spending makes improvements possible, but the improvements will fall short if spending fails to reach poor people—either because it goes for things the poor do not use or because it is diverted along the way—or if services are not made more productive.

For basic services in education, health, and infrastructure to work for poor people, governments have to be involved. Governments—and the societies they represent—often see improving outcomes in health and education as a public responsibility. This responsibility is often reflected in government spending. Economics gives two rationales for public responsibility. First, because of market failures, the amount of services produced and consumed would be less than optimal from society’s standpoint without government intervention. One type of market failure is the under provision of services to prevent or treat individual illnesses that spill over to the general populace. Another is the breakdown in insurance and credit markets, impoverishing people. “Public goods” (goods that, once produced, cannot be denied to anyone else and whose consumption by one person does not diminish consumption by others) are an extreme form of market failure. Mosquito control in a malaria endemic area is an example. There is no market incentive to produce public goods, so government intervention is required.

Other market failures relate to imperfect information. Different information about individuals’ risk of illness can lead to a breakdown in the market for health insurance. Lack of knowledge about the benefits of hand washing or of education can lead to less than desirable investment and consumption. These market failures call for government intervention, but they do not necessarily call for public provision: it could well be that the proper
role is financing, regulation, or information dissemination. The second economics justification for public responsibility is equity. Improving health and education outcomes for poor people, or reducing the gaps in outcomes between poor people and those who are better off, is often considered a responsibility of government.

There are a variety of social justice reasons behind this. Some see this responsibility as rooted in the belief that basic education and basic health are fundamental human rights. The United Nations Universal Declaration of Human Rights asserts an individual’s right to “a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care” and a right to education that is compulsory and “free, at least in the elementary and fundamental stages.” Subsequent international accords have expanded the set of health and education rights. Many national constitutions have guarantees for health and education.

Market failures and social justice are normative justifications for public responsibility— they describe why governments should be involved. They do not always give much guidance on how. Why governments actually get involved and how much they get involved provides insight on how public responsibility is discharged. Most poor people do not get their fair share of public spending on services, let alone the larger share that might be justified on equity grounds.

Market failures and a concern for equity call for some government financing of health and nutrition services. The concern for equity is either a social choice or based on the notion that health is a human right.
Public and Private Sectors

Many health services are private goods, and all countries have a private health care market. Most industrial countries started with private health systems. In low- and middle-income countries out-of-pocket spending represents a large share of health spending even in countries with well-functioning public systems (figure 8.6). And in the last 20 years there has been tremendous growth in private provision (often uncontrolled) and private spending on health.

The private sector is involved in many critical services, including disease control and child and reproductive health. But immunizations, family planning, and skilled delivery care are more often provided by the public sector. Even in India, poor people, who turn mainly to private providers to treat illnesses, rely on the public sector for vaccination (93 percent) and antenatal care (74 percent).

Private and Public Sectors Interact

Public spending has trouble creating quality services and reaching poor people. It is at this juncture that the private sector makes its entry. The population at large manages to have a healthy existence. The overall reading about the health scenario would be that the economy has a basic quality of health and this could be misinterpreted that there is only a weak association between health and public spending. But there is another reason for the weak association: private and public sectors interact, and what matters is the net impact on the use of services.

It is often seen that the health care in the private sector has been almost entirely curative in nature. In India, with about 85% of the doctors working in the private sector, practice chiefly curative medicine. Not only that, since the expansion of the private sector is taking place rapidly and account for over 80% of the health expenditure of the country, the overall trend is towards
curative medical care. This is indeed highly detrimental to the interest of the community and is progressively reducing the social efficiency of the medical profession in making contribution towards improving the health status of the people.

It is often seen that in the public sector, on the other hand, the situation is a mixed one. The urban component of the public sector in many ways resembles the medical practice in the private sector. A greater part of the public health care resources is spent on urban health care.

Unlike the private sector and the urban public sector, the medical practice in the rural PHCs is clearly sought to be oriented towards comprehensive care. (Jesani and Saraswathy, 1990)

The preponderance of curative medical practice in the health care services in our country is chiefly due to the domination of the private sector. This is compounded by the government’s almost non-implementation of the preventive care orientation in the urban public health sector and its weak implementation in the rural public health care sector. All these combined contribute to the low overall social and professional efficiency of the health care services in our country. And this situation, as Bhore Committee has put it, is detrimental to the interests of the society.

Failure of Government Provision

Ensuring basic health and education outcomes is the responsibility of the state. But many Governments are falling short on their obligation, especially to poor people. To meet this responsibility, governments and citizens need to make the services that contribute to health and education—water, sanitation, energy, transport, health, and education—work for poor people. Too often, these services are failing. Sometimes, they are failing
everybody—except the rich, who can opt out of the public system. But at other times, they are clearly failing poor people.

The failure of the government in providing these services can be identified as existing if any of the following conditions exist. Market failure affecting both the demand and supply sides of the market for health services will have significant implications for cost and quality of health care. First, while governments devote about a third of their budgets to health and education, they spend very little of it on poor people—that is, on the services poor people need to improve their health and education. Second, even when public spending can be reallocated toward poor people—say, by shifting to primary schools and clinics—the money does not always reach the frontline service provider. Third, even if this share is increased—professionals (in the case of health care delivery, the doctors, nurses, and other staff) must be present and effective at their jobs, just as doctors and nurses must provide the care that patients need. The fourth way services fail poor people is by the way of lack of demand. Poor people often don’t send their children to school or take them to a clinic. Sometimes the reason is the poor quality of the service—missing materials, absent workers, abusive treatment. At other times it is because they are poor. Even when the services are free, many poor rural families cannot afford the time it takes to travel to the nearest primary school or to the nearest medical facility. Whatever be the reason at the end of the road, poor remain as deprived as ever.

Public Expenditure Management

Public expenditure management—formulating, implementing, and reporting annual budgets—is a challenging task. With no effective mechanism for resolving the competing budget claims public expenditures will exceed available funds. The resulting unsustainable fiscal deficits can translate into high inflation, high interest rates, and burgeoning current account deficits. Despite the simple logic of this argument—and sometimes driven by external
shocks—countries slip into macroeconomic crises that inevitably lead to belt-tightening. Countries in crisis may have no option but to curtail basic services, even if the service delivery chain normally works well.

There are many pitfalls in considering the rationale and instruments for government interventions in the form of public expenditure. Focusing on market failures alone (information asymmetry, missing insurance markets) presumes that government implementation failures are inconsequential. Where this is actually true, public provision or financing is appropriate (Table 5.1). But where government failures outweigh market failures, ignoring them can lead to large public expenditures that benefit only the nonpoor or to services so defective that their opportunity costs outweigh their benefits for most poor people.

Table 2.7
Fallible Markets, Fallible governments, or both?

<table>
<thead>
<tr>
<th>Government failure</th>
<th>High</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Ambiguous, hard-to-monitor situations in which government failure may swamp market failure and so public financing for efficiency or equity reasons may not work for poor people (government primary teachers fail to show up for work, public clinical care goes only to the non-poor). Public expenditures should be directed to increasing client power through demand-side subsidies, co-payments, client monitoring, provider peer monitoring and information; strengthening voice (through decentralization, delivery arrangements that yield more information, participatory budget analysis); and supporting altruistic providers. Market and community-led delivery should be used to strengthen public institutions over time</td>
<td>Market failures keep services from benefiting poor people. Depending on the nature of the market failure, public actions could range from public provision or financing (subsidies) to regulation or information or disclosure that does not crowd out private responses or that at takes them into account</td>
</tr>
<tr>
<td>Low</td>
<td>Private provision and financing with appropriate public regulation or education</td>
<td>Private provision with appropriate regulation, and equity-driven interventions informed by potential private responses.</td>
</tr>
</tbody>
</table>

Similarly, ignoring the likely private response to public interventions (such as the crowding out of private providers or household income effects of government subsidies) can lead to ineffective public expenditures.

These questions about rationale and instruments cannot be answered without detailed information about the sector, the service, the nature and depth of market and government failures, which benefits (expenditure incidence), and private responses to public interventions.

**Regulation of Private Sector**

Apart from managing the public expenditure some effect can be created by regulating the role of growth of the private sector. In India, given the undesirable consequences of private sector growth in health, there has been virtual absence of various mechanisms, both within the government and outside the government, to influence the growth of this sector in desirable direction. The studies indicate that private health care significantly affects both the cost and quality of available health care services in India. (Uplekar, Mukund, 1989a, Uplekar, Mukund, 1989b, Vishwanathan, H. and J. E. Rohde, 1990, Yesudian, C. A. K. 1990, Duggal, Ravi and Suchetha Amin. 1989)

More than 2/3rd of the resources (total resources spent for health care) are spent in private health sector, much of it for curative care. The growth of the private sector has been very rapid, without much regulation. In the private sector there have been inefficiencies - especially in the hospital sector because of too many small (8-30 bed) nursing homes or hospitals (Bhat 1993). The central and state governments in India have promulgated several pieces of legislation to safeguard the health of population. Based on case studies done on regulations in India (Bhat, 1996), the effectiveness of these regulations and policies has always remained a problem due to various reasons. (Bhat, Ramesh. 1996) Some of the reasons are quoted below:
The implementation and enforcement of rules and regulations have been weak.

Since health is a state subject in India, there is no policy frame to have a common set of regulations for private healthcare sector.

There has been considerable amount of resistance from various constituents of the private healthcare sector (particularly private providers) to accept in principle the applicability of certain regulation to their profession.

Many regulations have not been updated and, therefore, have lost their relevance.

The state does not consider concerns related to private sector growth as a high priority on the policy agenda. There are no institutional mechanisms within the government to address private sector issues.

The evidence on regulations is also replete with suggestions that regulations alone cannot be effective. It has to be supported by well-laid down institutional mechanisms, which ensure effective implementation and strengths the role of various agencies. These agencies should be empowered to disseminate information and should have capacity to create peer pressure. The involvement of medical professional bodies and various agencies is quite critical in this area.

Health Seeking Behaviour

Health seeking behaviour should be distinguished from the broader concept of health behaviour defined as any activity undertaken by the individuals who see themselves as healthy for the purpose preventing disease or detecting it in an asymptotic stage. It is hypothesized that the use of health care services is determined by a combination of factors that include not only household and individual characteristics, but also illness characteristics as well.
as provision characteristics. Following Ward et al, (1997)\textsuperscript{142} these factors and their analytical orientation may be summarized as follows:

\begin{table}
\centering
\caption{Analytical Orientations or Approach to Health Seeking/Utilization Behaviour}
\begin{tabular}{|l|l|}
\hline
The economic & In which attention is concentrated on the impact of financial barriers in health seeking \\
\hline
The organizational or delivery system & In which the focus of attention is on the effects of aspects of health Organization on the use of services \\
\hline
The socio-demographic & In which the emphasis is on the significance of gross characteristics like gender, age, and education for utilisation of services \\
\hline
The geographic & In which the focus of attention is between geographical proximity of health services and utilisation \\
\hline
The socio-cultural & In which the orientation is towards examining the associations between the values, norms, beliefs, and lifestyle of different socio-economic groups and utilisation \\
\hline
The socio-psychological & In which the emphasis is on the link between individual motivation, perception and learning and utilisation behaviour \\
\hline
\end{tabular}
\end{table}


On the lines of the above analytical categories, several scholars have tried to develop health care demand and utilisation models. Kroeger (1983)\textsuperscript{143} tried to develop conceptual framework for examining the question of how people enter the sick role and make choices regarding the use or non-use of different health services. His ‘determinants model’ based on a bio-medical qualitative approach, focused on outlining a set of ‘explanatory variables’ or determinants that are associated with the choice of different kinds of health services. Anderson and his colleagues set out a model for health care
utilisation, which they claimed, to be a structural model for health care utilisation. (Anderson.R, Newman.J.F, 1973)\textsuperscript{144}.

In this model, three sets of determinants have been proposed, that influence health service utilisation. Society and systems determinants are postulated to influence individual determinants, which directly impinge on service use. Societal determinants include the current state of knowledge as well as people's attitudes and beliefs about health and illness. The factors operate either directly to influence the individual determinant or indirectly through their influence on the system factors. System factors include health service resources (both volume and distribution) and organization of health services. However, it is the individual determinants that are directly related to health services.

According to Anderson, the individual determinants of health service utilisation are divided into three categories. They are 1) pre-disposing variables – which are divided into demographic factors and social structure, 2) enabling factors and 3) illness level.
### Table 2.9

Factors Affecting Health Services Utilisation According to Anderson's Model

<table>
<thead>
<tr>
<th>Pre-disposing</th>
<th>Enabling</th>
<th>Illness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic</td>
<td>Family</td>
<td>Perceived disability</td>
</tr>
<tr>
<td>Age</td>
<td>Income</td>
<td>Symptoms</td>
</tr>
<tr>
<td>Sex</td>
<td>Insurance</td>
<td>Diagnosis</td>
</tr>
<tr>
<td>Marital status</td>
<td>Community</td>
<td>General health</td>
</tr>
<tr>
<td>Social structure</td>
<td>Facilities</td>
<td>Evaluated health condition</td>
</tr>
<tr>
<td>Education</td>
<td>Costs of service</td>
<td>Symptoms</td>
</tr>
<tr>
<td>Race</td>
<td>Region</td>
<td>Diagnosis</td>
</tr>
<tr>
<td>Occupation</td>
<td>Urban Rural</td>
<td></td>
</tr>
<tr>
<td>Family size</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beliefs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Values</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitudes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Anderson and Newman, 1973

**Individual Determinants of Health Service Utilization**

Pre-disposing variables, which are subdivided into Demographic factors such as age, sex and marital status and social structure, such as education, occupation, family size, religion and beliefs (e.g., values, attitudes and knowledge)

Enabling variables, on the other hand are the conditions, which permit the individuals to utilize the health services.
a) Family factors such as income, health insurance type and accessibility
b) Community factors such as availability, cost of service and residence

Illness level is probably the most direct factor related to health service use. It includes:

a) Perceived disability, symptoms and diagnosis and general health
b) Evaluated health condition by health personnel (Symptoms and diagnosis)

Anderson’s health care utilization model depicts the various determinants that influence the utilization of health services namely societal determinants, system determinants and individual determinants. All these determinants reserve value points for the efficiency with which these services are delivered.

Efficiency

Health care expenditure represents a major use of a nation’s resources and has been growing rapidly. Factors such as the ageing population, the increased personal use of health care, and medical advances that have opened the way for more treatment options and diagnostics have contributed to a rise in the demand for health care.

The only meaningful definition of efficiency available in economics really means absence of two very dissimilar types of ‘waste’, one, recognised by neo-classical economics, arising from a wrong activity-set, the other, not recognised by neo-classical economics but perhaps far more important in practice, arising from the forced idleness, or involuntary unemployment, of resources. The lack of recognition of this latter phenomenon by neo-classical
economics would not matter if it did not make policy prescriptions based on this lack of recognition. But because it does, a critique becomes urgent. It is quite often seen that in the case of public undertakings, as far as inefficiency is concerned, this idle capacity, or, untapped potential, is the major contributing factor.

According to Peacock, Mangolini, Johansen, (2001)\textsuperscript{145}, increased pressures on health care resources have led policy makers, administrators, and clinicians to search for more efficient ways to deliver health services. Efficiency improvements in the health sector, even in small amounts, can yield considerable savings of resources or expansion of services in the community.

Many governments have attempted public sector reform through a process of decentralisation, with lower tiers of the public sector hierarchy being granted greater decision-making autonomy. However, Central government has been reluctant to relinquish complete control, wanting to ensure accountability and consistency with national priorities. This has led to an increase in performance measurement, including attempts to assess the efficiency of public sector organizations.

Efficiency analysis appeals to Central government regulators for two main reasons. First, it promises to indicate the potential for performance improvement in each sector as a whole. Second, by assessing the performance of each organisation relative to its peers, it appears possible to set differential performance targets. (Andrew Street 2001)\textsuperscript{146} They are of the opinion that, cost-effective health care is an important objective for all governments. Compared to efficiency analysis in other industries, however, measuring efficiency in the provision of health services is complicated by the complex nature of health processes and the production of health services, as well as the characteristics of the health care market.
A proper economic perspective requires assessing health care efficiency in terms of health outcomes. Further, such an analysis should account for the impact on health of other factors such as education or living standards.

Efficiency measures can be a useful tool for health planning and policy evaluation. Lack of expertise in evaluation techniques and dearth of data were found to be major barriers to use efficiency measures, hence impeding the management of health services resources with a proper economic perspective.

In general, the measurement of efficiency involves three tasks:

✓ Identify model variables
✓ Formulate an efficiency measure incorporating these variables; and
✓ Obtain data to represent these variables and calculate the efficiency measure

The first task depends on a conceptual understanding of the production process, including its technological and behavioural characteristics, as well as factors affecting producers' ability to perform. For the second task, the selection of an appropriate evaluation technique is based on its capability to generate robust and informative efficiency estimates, and to adapt to features of the production process analysed. The third task requires collecting data that are well defined, accurate, and consistent with the conceptual framework underlying the efficiency measure.

There are two types of measurement techniques –

- Economic evaluation which *compares health programmes*; and
- Benchmarking analysis which *compares service providers*

Efficiency concepts are defined in terms of the objective of production assumed and the scope of activity analysed. In studies of health care efficiency,
The objective of production is perceived to be either providing services or achieving outcomes. Activities compared vary from alternative care procedures (also called health programmes), individual service providers, to entire health sectors across countries.

Health services are interventions provided to improve health for people in different health states. This reflects the primary objective of health care from a social perspective. In this context, health care efficiency refers to how well health care resources are used to obtain health improvements and comprises two components.

The two components of economic efficiency are—technical efficiency and allocative efficiency.

- In the context of achieving health outcomes, technical efficiency is achieved by applying cost-effective procedures with least inputs.
- Allocative efficiency is achieved by choosing a set of technically efficient health programmes to yield the greatest possible health improvements for the population.

This definition of efficiency is specific to health services and differs from one that is commonly used in other sectors such as manufacturing and agriculture, because health care efficiency is assessed in terms of outcomes achieved instead of outputs produced.

First, the final product of health care interventions is conceptualised to be the health consequences of service provision, rather than the amount of goods or services as measured for other production activities. Second, the definition of technical efficiency in health care is based on two types of comparisons: (i) comparisons of alternative diagnostic or treatment procedures applied to particular health states; and (ii) comparisons of service providers...
who choose and implement these care procedures. In non-health sectors, technical efficiency is defined mostly in terms of the latter type of comparisons only. Third, the definition of allocative efficiency in health care compares different forms of health care interventions for their impact on peoples' health, such as preventive care and acute care. This is different from the restrictive definition used in production economics (as in Lovell 1993) which considers only the substitution of inputs or outputs within a single production process in light of prevailing market prices. Further, allocative efficiency compares resource uses within the health sector, but not between health and non-health sectors. Efficiency of health services, as it affects the achievement of bigger and more noticeable targets like social equality and equity, can be considered as a major factor affecting the advancing of basic human capabilities.

The two complementary types of efficiency measurement techniques used are:

- Benchmarking analysis — which compares service providers, individually or collectively;
- Economic evaluation — which compares alternative health programmes

Benchmarking techniques are used to assess the level of technical efficiency relative to certain benchmark units. Benchmarking results reflect the selection of cost-effective care procedures for particular interventions and the level of operational efficiency in performing the chosen procedures. But the benchmark units may not use cost-effective procedures and can still be assessed as relatively efficient within the sample.

The efficiency of a production process — that is productive efficiency — refers to how well inputs are converted into final products. A production process may be defined to cover activities at different organisational levels — such as a whole industry, a firm, a production line, or a work procedure.
Subject to the scope of production activities, the level of productive efficiency is measured by comparing actual and optimal amounts of inputs and products. The optimum is defined in terms of production possibilities (frontier). A relative measure of efficiency is a function of distance to the frontier. In such a comparison, efficiency is technical since the frontier reflects the state of technology and the operating environment in which production takes place.

Different efficiency concepts may apply to different levels of the decision-making process. For example, where input choices are made at the Central (or district) level, it is of little interest to evaluate facility performance by means of the criterion of economic efficiency, which implies choosing the minimum cost combination of inputs. Technical efficiency is, however, a relevant measure of facility performance in this context, since it is concerned with the use that is made of a given quantity of inputs. Identifying the appropriate efficiency concept requires a thorough understanding of the institutional context.

Different efficiency concepts may apply to different levels of the decision-making process. For example, where input choices are made at the state (or district) level, it is of little interest to evaluate facility performance by means of the criterion of economic efficiency, which implies choosing the minimum cost combination of inputs. Technical efficiency is, however, a relevant measure of facility performance in this context, since it is concerned with the use that is made of a given quantity of inputs. Identifying the appropriate efficiency concept requires a thorough understanding of the institutional context.

There are different methods for analyzing the efficiencies of health care facilities.
**Ratio Analysis:**

The simplest way of measuring efficiency is through the use of simple ratios, such as the number of visits per health worker and consumption of drugs and supplies per health worker. Inpatient service efficiency is often expressed through the use of three service indicators: Average length of stay, bed occupancy rate, and turnover rate. Pabon Lasso (1986)\(^ {147} \) describes a method for simultaneously presenting length of stay, occupancy rate and turnover rate in a way that allows the relative performance of similar groups of facilities. Using the sample means, four quadrants can be defined, which divide facilities into four groups (Barnum and Kutzin 1993)\(^ {148} \):

I. Low turnover and low occupancy: facilities characterised by excess bed availability in relation to demand;

II. High turnover and low occupancy: facilities where there is excess bed availability, unnecessary hospitalisation, and a large number of beds used for patient observation, predominance of normal (vs. complicated) deliveries;

III. High turnover, high occupancy: Facilities that are performing well on average, with a relatively small proportion of unused beds;

IV. Low turnover, high occupancy: Facilities with high proportion of severely ill patients, predominance of chronic cases, unnecessarily long inpatient stays.

Such analysis can help quick identification of those facilities that perform relatively poorly and also point to potential explanatory factors.

Such ratio indicators have the advantage that they are easily calculated using routinely available data. However, they have certain disadvantages. In particular, because of the lack of appropriate weights for aggregating different types of outputs, they tend to focus on a single type of hospital activity and fail to reflect the multi-product nature of hospitals.
Accounting-based Costs:

Two types of studies using accounting costs can be distinguished in the literature (Barnum and Kutzin 1993). The first uses detailed step-down analyses of accounting. Stepdown costing is time consuming and invariably such studies include only a small number of facilities. The second approach uses aggregated accounting data together with assumptions about the relative resource intensity of different activities (e.g., outpatient visits and inpatient days) to arrive at an estimate of average costs.

Statistical Methods:

Within the group of statistical methods for measuring efficiency, two main approaches can be distinguished: those which use residuals from cost or production functions that are fitted through the "middle" of the data; and frontier methods. Both have been extensively used in the study of U.S. health facilities and, to a lesser degree, European ones. Each approach has its limitations, which are discussed below.

Cost and Production Functions

Using estimated residuals calculated from cost or production functions is the traditional way to measure inefficiency. This approach is used in Feldstein's (1967) study of National Health Service hospitals, and in studies of U.S. facilities by Goldman and Grossman (1983) and Frank and Taube (1987). Economic inefficiency can be accommodated by estimating non-minimum cost functions. For example, Wouters' (1993) cost functions for Nigerian health centres include an economic inefficiency variable estimated from a production function. Eakin and Kneisner (1988) estimate a non-minimum cost function to calculate the extent of economic inefficiency in U.S. hospitals.
There are three main disadvantages of this method. First, the approach is deterministic in the sense that the entire deviation from predicted cost (or output) is measured as inefficiency. Second, there is an assumption that the technology (or cost function) is the same at the frontier as in the middle of the data (Lovell 1993). Finally, the estimated residuals may be sensitive to the econometric specification, particularly the choice of functional form.

Frontier Approaches:

Stochastic frontiers

Stochastic frontier approaches attempt to take account of the fact that deviation from optimal performance may be due either to random factors outside the control of managers, or to systematic inefficiency (Lovell 1993). Both are captured in a composed error that can be broken down into its stochastic and systematic components. Stochastic cost functions for health facilities are estimated by Zuckerman, Hadley, and Iezzoni (1994) and Vitaliano and Toren (1994). The key limitation of this method is that it relies on untestable assumptions about the distribution of the error components (Newhouse 1994). It shares the risk of specification error associated with other parametric approaches to efficiency measurement.

Linear Programming (Data Envelopment Analysis)

Data Envelopment Analysis has now been quite extensively used in the health literature to study technical inefficiency. An empirical production frontier is estimated by setting out the relationship between inputs and outputs as a linear programming problem. The solution (a distance function) indicates either the amount by which output could be expanded using the same inputs, or the amount by which inputs could be reduced while maintaining the same level of output. Its main advantage is that being nonparametric, it is not subject to specification error in the same way as either the stochastic frontier
model or the cost function approach. However, like the cost function approach, it is deterministic and attributes the entire residual to inefficiency.

The use of data envelopment analysis in the study of hospital efficiency, both public and private, is relatively common. Most authors cite the inherent flexibility of the DEA model as a major attraction for its use in such studies. Another reason for the use of the DEA technique arises when there is lack of realistic price data associated with hospital inputs and outputs. The DEA technique is able to handle multiple outputs of production, reducing the need for price data to form the types of composite measures of output (and even input) required for regression-based techniques.

**Behavioural Implications of Being “Efficient”: Structural Models and Cost-minimisation**

The idea of an “efficient” health facility is derived from the neoclassical production model in which agents choose inputs to minimise cost, given exogenous demand. Under certain circumstances this is a reasonable characterisation of the behaviour of some privately owned firms. However, cost-minimisation is only one among many possible objectives of the public sector. Lovell (1993)\(^{159}\) cites the argument made by Pestieau and Tulkens (1990)\(^ {160}\), that, due to differences in objectives, public and private providers should only be compared on the criterion of productive (i.e., technical) efficiency because it is “the only objective shared by both types of producer and the only objective not in conflict with other goals of the public producer”.

The existence of multiple goals may lead to compromises between, for example, improving access and minimising cost. This may produce outcomes that are observationally equivalent to, but nonetheless different from, “inefficient.” Furthermore, the specific incentives and constraints facing the public sector may lead to managerial behaviour that is actually inconsistent with cost-minimisation, for example, satisfaction. Thus, in the context of the
particular institutions within which public providers operate, "efficient" production is not a realistic policy goal. Rather, the objective should be to improve efficiency. One way to do this is to identify those facilities that are performing better than others. The factors that are associated with these performance differentials can then be identified, and interventions developed which can help bring the performance of the "worst" facilities closer to that of the "best" ones.

The health scenario in any nation will be a collage of whatever has been discussed above. There will be a demand for medical care. Health, being a complex commodity exhibiting the characteristics of public, merit and private goods, will be subject to market failures. The government too can be found failing in providing services. But where government failures outweigh market failures, ignoring them can lead to large public expenditures that benefit only the nonpoor or to services so defective that their opportunity costs outweigh their benefits for most poor people. The situation becomes more difficult in case of existence of an unregulated market. The inverse care law ("the availability of good medical care tends to vary inversely with the need to it in the population served") is alive and well in the developing world. It has to be kept in mind that health care continues to be an instrument of social control. Priority based distribution of health care has to thoughtfully, scientifically planned and implemented if the society is to maintain equilibrium.
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136


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