EFFICIENCY IN DELIVERING OBSTETRIC CARE – A COMPARISON OF PUBLIC AND PRIVATE HOSPITALS IN ERNAKULAM DISTRICT

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By
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CERTIFICATE

This is to certify that the work entitled "EFFICIENCY IN DELIVERING OBSTETRIC CARE –A COMPARISON OF PUBLIC AND PRIVATE HOSPITALS IN ERNAKULAM DISTRICT" is a bonafide research work done by Ms. Poornima Narayan R under my guidance and supervision. The thesis is worth submitting for the award of the Degree of Doctor of Philosophy in Economics. Also certified that this thesis has not previously formed the basis of the award of any Degree, Diploma, Associateship, Fellowship or any other similar titles of recognition to the best of my knowledge.

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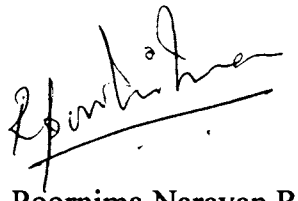
DECLARATION

I hereby declare that the thesis entitled "EFFICIENCY IN DELIVERING OBSTETRIC CARE –A COMPARISON OF PUBLIC AND PRIVATE HOSPITALS IN ERNAKULAM DISTRICT" ,is based on the original work done by me under the guidance of Dr. K. C. Sankaranarayanan, (former Professor and Head of the Department, Dept. of Applied Economics), Cochin University and Science and Technology, Cochin-22. I declare that this thesis has not previously formed the basis of the award of any Degree, Diploma, Associateship, Fellowship or other similar titles of recognition to the best of my knowledge.



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'The test of any civilization is the measure of consideration and care which it gives to its weaker members'

CHAPTER 1

Introduction To Indian Health Scenario

Health, as a major aspect of life, has been accepted since yore. Health is a common theme in most of the cultures. Health, in olden days, was defined as 'the absence of diseases'. Even then, health continues to be a neglected entity. Health is often taken for granted, and its value is not fully understood until it is lost.

Health has always remained a major concern of institutions, which are responsible to the public. The health care as promoted by these institutions, catered to the population as a whole and was referred to as 'public health', that meant, health of the public. This concentrated largely on secondary and tertiary interventions. However, during the past few decades, there has been a reawakening that health is a fundamental human right and a world wide social goal. At the beginning of the 20^{th} century, a new concept, the concept of 'health promotion', began to take shape. It was realized that public health had neglected the citizen as an individual, and that the state had a direct responsibility for the health of the individual. Consequently, in addition to disease control activities, one more goal was added to public health, i.e., health promotion of individuals.

With the increasing recognition of failure of the existing health services to provide health care, alternative ideas and methods to provide health care have been considered and tried. After three decades (after the constitution of World Health Organisation) of trial and error and dissatisfaction in meeting people's basic health needs, in 1977, the 30^{th} World Health Assembly decided that the main social targets of governments and the World Health Organisation in the coming decades should be "the attainment of all citizens of the world by the year 2000 of a level of health that will permit them to lead a socially and

economically productive life", for brevity, "Health For All". At the Joint WHO-UNICEF International conference in 1978 at Alma-Ata (USSR), the governments of 134 countries and many voluntary agencies called for a revolutionary approach to health-care. It was recognized and declared that, "the existing gross inequality in the health status of the people, particularly between developed and developing countries as well as within countries is politically, socially and economically unacceptable". With the adoption of health as an integral part of socio-economic development by the UN in 1979, health, while being an end in itself, has also become a major instrument of overall socio-economic development and the creation of a new social order. The unstated emphasis is on the concept of 'public health'. Currently, public health, along with other medical sciences, and other health-related sectors, is engaged in the broad field of effort of imparting health for all. The concept of health for all implies that health is to be brought within the reach of every one in a given community. It implies the removal of obstacles to health – that is to say, the elimination of malnutrition, ignorance, disease, contaminated water supply, unhygienic housing, etc. It depends on continued progress on medicine and public health. 'Public health' is normally the concern of the respective governments of the nation. But what are the areas requiring emergency attention, what is the mix of basic minimum services to be provided, what is the correct time span for continuing providing such health support, defining the target population, etc. are a few of the ethical issues that make decisions on public health very delicate. Public health even now, as in the past, faces ethical issues, which relate to the expenditures undertaken, the priorities and social philosophy. Health for all is a holistic concept calling for efforts in agriculture, industry, education, housing and communications, just as much in medicine and public health.

The Alma-Ata (1978) conference called for the acceptance of the Health For All by 2000 AD and proclaimed ***primary health care*** as the way for achieving health for all.

Primary health care has been defined 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 every stage of their development in the spirit of self-determination". It forms an integral part of both of the country's health system, of which it is the central function and main focus, and of the overall social and economic development of the community. It is the first level of contact of the individuals, the family and the community with the national health system bringing health care as close as possible where people live and work, and constitutes the first element of a continuing health process.

The Alma-Ata Declaration identified ten activities as the basic elements of Primary Health Care; the general medical practice is forming only a part of this.

The approach of Primary Health Care is that of primary prevention (It prevents the condition from starting). The declaration contains important socio-political implications that address not only treating disease, but also ensuring fair access to positive well-being for all citizens. It recognises social, economic and environmental determinants of health and promotes the importance of community participation. It also acknowledges that improvements in health result mainly from activities outside the health sector.

The new policy emphasized equity, focus on prevention rather than cure, inter-sectoral action, community participation and appropriate technology. Primary Health care approach is based on principles of social equity, nation-wide coverage, self-reliance, intersectoral coordination and people's involvement in the planning and implementation of health programmes in pursuit of common health goals. This approach has been defined as "health by the people" and "placing people's health in people's

income countries in terms of availability of health infrastructure and its utilization, as well as the overall disease burden.

Table 1.1

Hospital use – indicators –India and the world

Indicators	Inpatient admissions per capita per year	Average length of hospital stay	Outpatient visits per capita per year	[1] DALYs lost (per'000 population)
Indian public sector	**0.7**	**14**	**0.7**	-
Indian total	**1.7**	**12**	**3.9**	**274**
World	**9**	**13**	**6**	**234**
Low-income countries	**5**	**13**	**3**	
Middle income countries	**10**	**11**	**5**	**256**
High-income countries	**5**	**16**	**8**	**119**

Source: India utilization data: 52nd round of NSSO (1998), World development indicators, 2000

One of the important findings in earlier studies in health is that the ratio of healthcare expenditure to GDP increased as countries were being developed economically and industrially. The pioneering works of Abel- Smith in 1968 and 1969 brought out this issue in World Health Organisation studies. They found that after adjusting for inflation, exchange rates and population, GDP is a major determinant of health expenditure. (Ramesh Bhat, Nishant Jain, 2004)[1]

[1] Disease Adjusted Life Years – The sum of years potential life lost due to premature mortality and the years of productive life lost due to disability.

Table 1.2

GDP and Healthcare Expenditure of Various Countries

Country	Per capita income ($ 2002)	Health expenditure per capita $
Bangladesh	360	144
Brazil	2,850	54
China	940	139
Costa Rica	4,100	50
Cuba	-	118
Egypt	1,470	115
India	480	133
Indonesia	710	154
Korea	9,930	31
Malaysia	3,540	93
Mexico	5,910	55
Myanmar	-	136
Nepal	230	170
Pakistan	410	142
Philippines	1,020	124
S.Africa	2,600	57
Srilanka	840	138
Thailand	1,980	64
Vietnam	430	147
Zimbabwe	-	110

Source : Data compiled from World development report 2004

In a seminal paper Newhouse (1977)[2] raises the question what determines the quantity of resources any country devotes to medical care. His analysis found that per capita GDP of the country is the single most important factor affecting

health expednitures. The study found a positive linear relationship between fraction of health care expenditure to GDP and GDP. Results of Newhouse were in conformity with an earlier study by Kleiman (1974)[3] and both these papers worked as a base for a large literature, which viewed income as a major determinant of health care expenditure. This result was also verified by a number of studies later on.

Table 1.3

[2]Public Expenditure on Health as Percentage of Total Expenditure on Health

Country	Percentage
Bhutan	90.6
Maldives	83.5
Democratic people's republic of Korea	73.4
Timor-Laste	59.5
Thailand	57.1
Sri Lanka	48.9
Bangladesh	44.2
Nepal	29.7
Indonesia	25.1
India	17.9
Myanmar	17.8

Source: (Bhat and Jain, 2004).

The comparison of health expenditure with other countries suggests that India's public health expenditure is only 17.9 per cent of total expenditure on health care while it is close to 90 per cent for smaller countries like Bhutan and Maldives.

[2] Public Health Expenditure (PHE) is the sum of outlays on health paid for by taxes, social security contributions and external resources (without double-counting the government transfers to social security and extra-budgetary funds)

In the years since independence, there have been significant gains in health status in India, but they do not compare favourably with those in many similarly placed developing countries.

Poor public health expenditure remains the predominant cause of the unsatisfactory performance of the health system, though serious deficiencies in efficient utilization of available resources also contribute substantially to poor health outcomes. With almost 87% of private financing and out of pocket expenditure, the aim of the National Health Plan of the state provision of free universal health care to the entire population is completely divorced from ground realities.

Table 1.4

Demographic and Health Indicators – India and the World

Countries	CBR	CDR	TFR	IMR	<5MR 1995	MMR Reported	Life expectancy @birth1999		% of birth attended by trained health personnel 1995-2000
							Male	Female	
Bangladesh	28	10	3.5	80.0	115.0	440.0	57.5	58.1	13
Brazil	21.0	7	2.4	45.0	57.0	160.0	63.7	71.7	92
China	17.0	7	2.4	35	43.0	55.0	68.1	71.3	67
Costa Rica	25.0	4	2.9	13.0	16.0	29.0	74.2	78.9	98
Cuba	14.0	7	1.7	9.0	10.0	27.0	73.5	77.4	100
Egypt	27.0	8	3.5	57.0	76.0	170.0	64.2	65.8	61
India	26.0	9	3.2	69.0	95.0	410.0	59.6	61.2	35

Indonesia	23.0	8	2.7	52.0	75.0	450.0	66.6	69	56
Korea	16.0	6	1.8	10.0	14.0	20.0	-	-	98
Malysia	27.0	5	3.4	12.0	14.0	39.0	67.6	69.9	96
Mexico	26.0	5	3	33.0	41.0	55.0	71	77.1	86
Myanmar	28.0	10	3.5	84.0	119	230.0	58.4	59.2	56
Nepal	37.0	12	5.3	92.0	131.0	540.0	57.3	57.8	9
Pakistan	38.0	9	5.3	91.0	127.0	-.0	62.6	64.9	19
Philippines	29.0	7	3.8	40.0	53.0	170.0	64.1	69.3	56
South Africa	30.0	8	3.9	51.0	67.0	-	47.3	49.7	84
Srilanka	20.0	6	2.3	16.0	19.0	60.0	65.8	73.4	94
Thailand	17.0	6	1.8	35.0	42.0	44.0	66	70.4	71
Vietnam	26.0	7	3.1	41.0	49.0	160.0	64.7	68.8	77
Zimbabwe	31.0	9	3.9	55.0	83.0	400.0	40.9	40	84
Hi-income economies	13.0	8	1.7	7.0	9.0	-	-	-	99
Middle income economies	22	8	3.0	39.0	53.0	-	-	-	52
Low-income economies	26	10	3.2	69.0	104.0	-	-	-	28
Sub Saharan Africa	41	15	5.7	92.0	157.0	-	-	-	37
World	23	9	2.9	55.0	81.0	-	-	-	56

Source: India Health Report, 2000.

Any significant improvement in the health scenario is contingent on a major step up in public investment. The Commission on Macroeconomics and Health (CMH) has recommended a minimum level of additional investment in health through domestic mobilization equivalent to 1% of GDP. Since the current level of public expenditure is estimated at around 1%, this means a doubling of current health outlay.

Although over the last 50 years, India has shown improvements in its health infrastructure and broad health indicators, on public financing front it is at a far from satisfactory level. Public spending on healthcare on infrastructure is low compared to the many countries in the world, having declined from 1.3 per cent of GDP in 1990 to around 0.9 per cent of GDP in 2002, placing India amongst the lowest quintile of countries. Aggregate expenditure on health is around 6 per cent of GDP, implying only about 17 per cent is met through public health spending, the balance by out-of-pocket expenditure.

'The hospitalized Indian spends more than half of his total annual expenditures on buying health care; more than 40% of hospitalized people borrow money or sell assets to cover expenses and 35% people fall below the poverty line'

Health care in India

The Indian constitution charges the states with "the raising of the level of nutrition and the standard of living of its people and the improvement of public health". Central government efforts at influencing public health have focused on the five-year plans, on coordinated planning with the states, and on sponsoring major national health programmes. For most national health programmes government expenditures are jointly shared by the central and state governments. Healthcare expenditure is a very necessary social expenditure for any country. Like any other social expenditure, health

India	**17.9**
Myanmar	**17.8**

Source: Bhat and Jain,2004

India is included in the World Bank's list of the lowest income countries, ranking 22nd from the bottom in terms of GNP per capita.

The spending on health has major contributions from private households (75 per cent). State governments contribute 15.2 percent, the Central government 5.2 percent, third-party insurance and employers 3.3 percent, and municipal government and foreign donors about 1.3 (World bank 1995). Of these proportions, 58.7 percent goes toward primary health care (curative, preventive, and promotive) and 38.8 percent is spent on secondary and tertiary inpatient care. The rest goes for non-service costs.

At the time of independence, the health condition in India was really pathetic. Half of the children born died before they were ten years of age. Maternal death rates also were very high – 20 per thousand live births.

India's approach to organizing health care services was strongly influenced by the British system, which was evolved in the 1940's. A great deal of effort was in fact, put into designing health policies soon after independence following the recommendations of the Bhore Committee (1943). A major component of this was making high- quality health services, ***largely curative in nature***, available at little or no cost to every citizen. This approach has two drawbacks-

- The requirement of a massive resource base makes this approach unsuitable for India.

- The epidemiological profile of India requires that special care be given to the prevention and control of communicable diseases, which in turn reduces the exposure to disease.

The paradigm followed by Bhore Committee for providing universal and free public health care to all with the government assuming full responsibility and authority for the direct provision of services, was certainly desirable in principle. The Bhore Committee called for a socialized system of health services, dominated by the public sphere, with no financial barrier to equal access to all and the eventual elimination of private medical practice (GOI 1946)[6].

The health policy in India, which largely followed the Bhore Committee Report, (with some additional references to indigenous system of medicine and a few elementary aspects of community health), gave preventive measures the highest priority. It also urged the establishment of special campaigns against specified diseases, in particular, malaria, TB, VD and leprosy. The idea of disease eradication campaigns did not suit much to the Indian context.

The ideology represented by the Bhore Report fitted well with the Nehruvian emphasis on achieving socialistic goals through top-down planning exemplified further when the Planning Commission was established in 1950. The Plans gave the Union Government a financial mechanism to supplement persuasion as a way of achieving a coherent national health policy framework. The plans have been the main vehicle of Central Government attempts to influence health policy in the States. The 'basic needs strategy', which was the catchword after the fourth plan, emphasized the provision of basic services to the mass of the population and the Minimum Needs Programme raised the importance of 'social expenditures' (expenditure on health, education, social welfare etc). Until mid-1970s, several policies were introduced and

implemented, almost all within the framework established by the Bhore Committee. However, a scrutiny of health planning will expose a definite shift of resources towards preventive medicine, rural areas, and paramedical workers.

The policy followed by India was unfortunate for several reasons including the following: -

- The model is expensive to sustain, even for a country like Britain, which has far greater resource availability per capita than India.

- India's epidemiological profile is such that the most pressing need is to provide preventive services for reducing the heavy burdens from diseases such as gastro- enteric infections and malaria. Britain had already tackled these problems some decades before setting up their welfare state health policies. India's health planning has tended to overlook the fact that experience in most countries shows that aggregate health levels cannot improve without preventive measures, such as environmental sanitation.

- The level of knowledge about the causes of illness and its prevention and treatment amongst large parts of the Indian population is very low. If high priority were given to raising this level, the effectiveness of even the existing services would have been considerably increased.

Subsequent to Bhore Committee, India's health policy has essentially been carried on with little effort to alter directions in response to experience. The policies have essentially been altered in two *ad hoc* ways

- By default, and
- By superimposing massive new programmes on the existing structures

India signed the Alma Ata declaration in 1978. Government of India responded to the 'Health For All' movement by formulating a National Health Policy in 1982, the first such statement of intent since India's independence in 1947. As far as India was concerned, the Bhore Committee's Report, which it had enunciated three decades earlier, included all the major prescriptions given by the HFA policy (A Primary Health Centre was conceived in India as an institutional structure to provide integrated preventive, promotive, curative, and rehabilitative services for the rural population of the country. This idea was developed as a response of the political leadership of the national freedom movement to meet the rising aspirations of the people. The first batch of PHCs was set up in 1952.) Howsoever, major follies of the health planning so far followed, like, the over-emphasized curative, high-technology medicine and urban hospitals and the pursual of 'elitist' health manpower policies, which undermined the possibility of widely available basic health care were hoped to be corrected by the National Health Policy of 1982. The National Health Policy hoped to correct this by steering the country towards the 'universal provision of comprehensive primary health care services'. This required reorganization of health infrastructure, major modifications in the existing system of medical education and paramedical training, and integration of health plans with those of health related sectors, such as water supply and food production, as well as with socio-economic development process.

As the 1980s advanced, India made slow but perceptible progress towards better health. General mortality fell by 20% and life expectancy increased by four years. Fertility declined by 10%. Towards the end of the 80s, however, economic pressures led to stringent government health budgets, which took their toll of state-supported health care. The private health sector was growing in gigantic proportions in the meanwhile. Economic liberalization is expected to fuel further growth in drugs and medical

technology sector, bringing urgency to the need for quality and price controls to protect the health for all.

The National Health Policy of 1983

A National Health Policy was formulated in 1983 and since then, there have been marked changes in the determinant factors relating to the health sector. Some of the policy initiatives which have been outlined in the NHP-1983 have yielded results, while in several other areas the outcome has not been as expected.

The NHP 1983 gave a general exposition of the recommended policies required in the circumstances then prevailing in the health sector. The noteworthy initiatives were:

1. A phased, time-bound programme for setting up a well-dispersed network of comprehensive primary health care services, linked with extension and health education, designed in the context of the ground reality that elementary health problems can be resolved by the people themselves;

2. Intermediation through 'Health Volunteers' having appropriate knowledge, simple skills and requisite technologies;

3. Establishment of a well-worked out referral system to ensure that patient loads at the higher levels of the hierarchy is not needlessly burdened by those who can be treated at the decentralized level;

4. An integrated network of evenly spread speciality and super-speciality services; encouragement of such facilities through private investments for patients who can pay, so that the draw on the government's facilities is limited to those entitled to free use.

The public health initiatives over the years have contributed significantly to the improvement of health indicators. Life expectancy, crude birth rate, crude death rate, IMR, etc. have shown positive improvements. Small pox and Guinea worm have been eradicated; Polio is on the verge of eradication; Leprosy, Kala azar and Filariasis can be expected to be eliminated in the near future. There has been a substantial drop in the Total Fertility Rate and IMR.

Table 1.6

Select Goals Under National Health Policy, and Achievement

Indicator	Level as quoted in NHP	Goals			Achievement		Latest available
		1985	1990	2000	1985	1990	
IMR	125 (1978)	106	90	<60	97	80	72(88)
Perinatal mortality	67 (1976)	-	-	30-5	53.8	49.6	42.5(94)
Crude death rate	Around 14	12	10.4	9	11.7	9.6	8.9(97)
Life expectancy at birth	52.6 (76-81)	55.1	57.6	64	58.1	58.1	64.1(2001-6)
Male Female	51.6 (76-81)	54.3	57.1	64	59.1	59.1	65.8(2001-6)
Crude birth rate	Around 35	31	29.1	21	32.9	30.2	27.2(97)
Growth rateAnnual	2.24 (71-81)	1.9	1.66	1.2	2.07	1.87	1.66(1996-2016)
Pregnant mother getting	40-50	50-60	60-70	100	40-50	60(88)	65.4(1998-9)

ANC							
Deliveries by trained birth attendant	30-5	50	80	100	30-5	40-50(88)	35(1999)
Immunisation status coverage %							
1.TT-pregnant women	20	60	100	100	80.6	78.16	78.7(1996-7)
2.TT school children 10yrs	-	40	100	100	82	60.5	55.1(1996-7)
3.TT schoolchildren-16 yrs	20	60	100	100	92.7	86.45	47.6(1996-7)
4.DPT-children below 3yrs	25	70	85	100	96.2	98.19	89.3(1996-7)
5.Polio infants	5	50	85	100	93.9	98.86	90.7(1996-7)
6.BCG infants	65	70	85	100	47.3	101.51	97.1(1996-7)
7.DT new school entrants5-6yrs	20	80	85	100	112	82	58.7(1996-7)
8.Typhoid new school entrants5-6yrs	2	70	85	85	70.3	62.6(88)	-

Source: Health Information of India, 1995 and 1996 and unpublished data for forthcoming publication of the CBHI, MHFW.

Provision of Health Care in India

The responsibility of providing health care in India - a country of over a billion people, is shared by three major sectors - the public, the private, and the household sectors. The public sector is comprised of medical institutions owned and governed by the Central and State governments, municipal and

local bodies. The private sector consists of private physicians and a range of other practitioners (including those practicing non-allopathic systems of medicine), health facilities and corporate hospitals operating for profit, corporate bodies providing medical care to their employees, and non-governmental organizations (NGOs) operating as not-for profit enterprises and providing services free of cost or at subsidised rates. Households provide a large proportion of first-level care in many settings, and this is especially true in a country like India where formal health services are unavailable or unaffordable to a significant section of the population.

In the public health sector health care is provided at three levels. Basic preventive care is provided through sub centres and Primary Health Centres (PHCs), which are also a source of curative care in a limited sense. At the secondary level, rural hospitals, community health centres and district hospitals act as the referral centre to the primary-level health centres. Tertiary health care is provided by specialist hospitals and teaching hospitals (medical colleges). Services are provided free of cost in most instances, although a fee may be charged for specific services such as laboratory tests or X-rays. To understand the organization of public health services in India, it is important to note that in India's federal structure of governance, the States are responsible for 'health'. The Central government may plan and fund health care services, but the responsibility for implementation rests with the State governments. (Saha, S., T.K.S. Ravindran 2002)[7]

In the first two Five year plans following India's independence in 1947 there appeared to be a commitment to addressing health needs of the population comprehensively - with preventive, promotive and curative care provided through a wide network of community-based health centres in tune with the recommendations of the well-known Bhore Committee. However, in the years that followed, the health sector appears to be driven by technological forces and it has become physician-centred, reducing the pursuit of health to

the provision of medical care. The broader determinants of health have been ignored, and investments in providing basic amenities, for improving nutrition and living conditions, in better education and quality of life for the people have taken a back seat. Today a combination of forces is pressing for an even greater market orientation of health care. The country's economy is being further 'liberalised' and dragged into the unequal, uncontrolled global market, leading to deterioration in living and working conditions for the majority, increased cost of medicines, corporatisation of medical care and medicalisation of women's life and bodily functions. Tulasidhar and Sarma 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. (Tulasidhar V. B., Sarma J. V. M., 1993)[8]. There is a steady withdrawal of state support for health services. However, experiences from Latin America show that the state should continue as the main provider of health care since NGOs and the private sector cannot replace the state. The present paradigm of health care development has accentuated inequalities in health - between classes, age groups, and sex.

The rapidly growing private sector mainly provides curative services only to those who can pay. The private sector though not organised, is regulated to a limited extent by statutory bodies like the Indian Medical Association and the Medical Council of India. (Bhat 1996)[9] 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 [Bhat, 1996][10]. Traditional and indigenous systems of medicine also play an important role in meeting people's health needs.

Structural Adjustment Programme (SAP) in India

Most of the developing countries confront periods of macroeconomic imbalances: rising inflation, imbalances in aggregate demand, supply, and foreign exchange crisis. In order to tackle these imbalances, the countries undertake structural adjustment programmes, often in collaboration with international lending agencies. The structural adjustment programmes and stabilization processes often necessitate cuts in government expenditures, devaluation of currency, relaxation of price controls and restraint on wage levels.

In the nineties, many developing countries attempted SAP. India also chose to adopt the path of SAP in the early nineties. After liberalisation degree of control exercised by Centre has been reduced in many areas leaving much greater scope for States to improve their performance level and initiatives. This is particularly true as far as attracting investments, both domestic and foreign, is concerned. Besides liberalization measures, SAP implied a reduction in the budgetary deficit. Thus spending in the social sectors had to be curtailed. The impact of this reduction in expenditure is also being felt in the health sector.

In general in the period between 1984-93, the central grants to the states declined from 19.9% to 3.3%. The impact of this decline is most heavily felt on specific purpose Central grants to the States for public health (which dropped from 27.92% to 17.7%) and disease control programmes (which dropped from 41.47% to 18.5%). To overcome this adverse impact of structural adjustment, it is necessary to device a health sector strategy that could augment its resource base.

Health Scenario in the Context of SAP

The World Bank proposals for structural adjustment and health reforms, such as cuts in public spending on health services, including tertiary

level medical care and shifts to strengthen population control, shifting curative care to the private sector, introduction of cost-recovery mechanisms in public hospitals, defining essential clinical and public health packages etc., have already been initiated in the country. Another possible change in the approach with unfavorable consequences would be the shifting of responsibility of medical and public health care to the households or the household microenvironment. This would be disastrous as the State abdicates its responsibility for the provision of health care, and the majority of the households at the subsistence level in the state would be left without any life-support system. (K. N. Rajasekharan Nayar, 1998)[11]

Primarily as government moves out of the health sector, where it previously existed as a major provider of health services, the private players come in. This increases the cost of acquiring health services. Keeping into consideration the heterogeneity of the population with in the country itself, not all are affected due to the reduction in public health expenditure. It is the economically disadvantaged who bear the brunt of the situation. The poor find themselves in a position where they cannot avail of the private health services. In this context, government plays a vital role in providing health services for the people in need. This may be a part of the total fallout of structural adjustment programmes. Relaxation of price controls on essential services, especially non-health services, results in people spending more on these goods and services. This reduces their spending on health services. Health spending among the poor is much more income and price elastic compared to the well-off sections. Estimates reveal that they tend to spend a greater proportion of their income on acquiring health services. Even if the nominal income of the people is unaffected, the rise in the general price levels results in a fall in the real income whereby the share of income spent on health services shrinks. Nutrition has considerable influence on the health status of the people. In periods of crisis, people resort to less nutritious diet whereby their intake of essential vitamins and nutrition is reduced. This makes the people more

susceptible to certain diseases. At the same time, they are unable to access medical treatment and continue to suffer from preventable diseases.

A recent study by the National Council for Applied Economic Research (NCAER) reveals that the richest 20% enjoy three times the share of public subsidy for health compared with the poorest quintile. The poorest 20% of Indians have more than double mortality rates, fertility rates and under nutrition levels of the richest 20%. The poor suffer disproportionately from pre-transition diseases such as Malaria, and TB. On an average, they spend 12% of their incomes on health care, as opposed to only 2% spent by the rich. Treatment or hospitalization for chronic illness often means the liquidation of meager assets, even permanent indebtedness. It is no wonder that the number of poor people who did not seek treatment because of financial reasons increased from 15% to 24% in rural areas and doubled from 10% to 21% in urban areas. The obvious and most important reason is that for a state that promises universal health through the public health system, India has one of the lowest health budgets in the world. This gross mismatch is at the heart of both the inadequacies and inequities of the Indian health system. The states role in health has fallen well short of its declared intentions. Not only has it failed to provide care to majority of the population through the public sector, it has also countenanced a large and thriving private sector to grow practically without regulation. Private sector has grown as the main provider of curative health care. It currently dominates both inpatient and outpatient care, irrespective of income groups, rural/urban divide, gender, caste or tribe differences. The private sector is, neither regulated with respect to costs or quality of care, nor is guided by national health goals. In this context, it is not surprising that the poor are forced to pay beyond their means for private health care. The poor is vulnerable to all kinds of diseases and this vulnerability makes them even poorer.

National Health Spending in India

Analysis of the national health spending in India shows that the government provision is very low when compared with out of the pocket expenditure. Table 1.7 shows the breakup of the national expenditure on health in India in 1995.

Table 1.7

National Health Spending in India: Sources and Uses (Percentages)

Uses	Sources					
	Central government	State & Local govt.	Total Govt.	Corporate & third party	Households	Total
Primary Care	4.3	5.6	9.9	0.8	48.0	58.7
Secondary& Tertiary IP Care	0.9	8.4	9.3	2.5	27.0	38.8
Non-service Provision	0.9	1.6	2.5	NA	NA	2.5
Total	6.1	15.6	21.7	3.3	75	100

Source: World Bank 1995b

When the government was financing 9.9%, 9.3% and 2.5% of primary, secondary, tertiary, and non-service care, the corresponding percentages for household expenditure was 48.0 and 27.0 for primary care and secondary and tertiary inpatient care.

Financial Resources

The public health investment in the country over the years has been comparatively low, and as a percentage of GDP, has declined from 1.3% in 1990 to 0.9% in 1999. The aggregate expenditure in the health sector is 5.2% of the GDP. Out of this, about 20% of the aggregate expenditure is public health spending, the balance being out-of-the-pocket expenditure. The Central

budgetary allocation for health during this period, as a percentage the total Central Budget has been stagnant at 1.3%, while that in the states has declined from 7.0% to 5.5%. The current annual per capita public health expenditure in the country is no more than Rs.160. Given these data, it is no surprise that the reach and quality of public health services have been below, the desirable standard.

Table 1.8 shows the break up of estimates of total health expenditure in India

Table 1.8

Estimate of Total Health Expenditure in India, 1990-91

Source of expenditure	Total (rs. Crore)	Per capita (Rs.)	Per cent of total	Per cent of GDP
Public Sector				
Centre	554	6.6	2.1	0.1
States	4981	59.3	18.6	1.1
Municipalities	126	1.5	0.5	<0.1
External aid	118	1.4	0.5	<0.1
Sub total	5779	68.8	21.5	1.3
Private sector				
Out-of-pocket (Households)	20160	240.0	75.2	4.5
Private employers	319	3.8	1.2	0.1

ESIS contribution(non-govt)	202	2.4	0.8	<0.1
Other sources	361	4.3	1.4	0.1
Sub-total	21042	250.5	78.5	4.7
TOTAL	26821	319.3	100.00	6.0

Source: World Bank Mission estimates, March 1992

The aggregate figure of Rs.319 per capita was about US13$ at exchange rates prevailing at that time. Even with India's low per capita income and the declining international value of the rupee, it is surprising to find that India's level of health spending is high relative to its income and in comparison with other Asian countries.

Public sector spending for health has increased significantly in real terms since mid-1970s. Over the period 1975-89, medical and public health spending rose at over 6% annually in real terms, while the family welfare spending increased over 10% annually. India's private health expenditure is also relatively high as a proportion of income relative to other countries in the region.

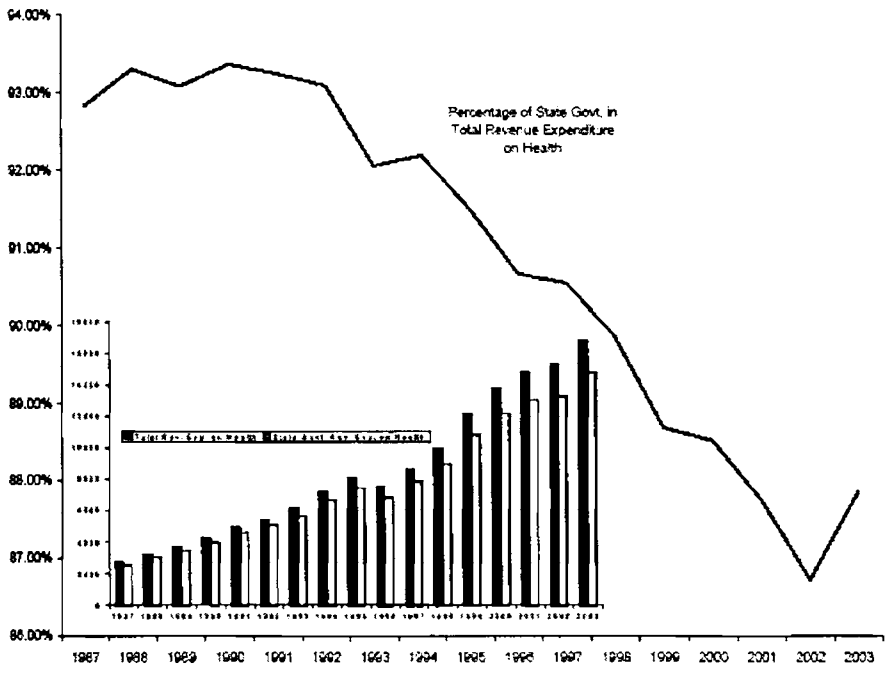
In the 1950s and 1960s private health expenditure was 83 per cent and 88 per cent of total health expenditure respectively. Today also according to latest figures the proportion of public expenditure on health to GDP in India is only 0.9 per cent while the average public spending of less-developed countries is 2.8 per cent. Only 17 per cent 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.

Centre and State Roles in Public Healthcare Expenditures

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 centre provides direct and partial (matching grant) support to the states in meeting both recurring and non-recurring expenditure of programmes under this policy initiative. The states' share in the total revenue expenditure has been declining. This is also reflection of the fact that state governments are going through serious fiscal problems. The role of central support in state budgetary allocations is increasing. We can see from the following figures (Figures 1.1 and 1.2) that the percentage of State expenditure is decreasing in total health expenditure and the same is rising of central govt. expenditure, though the change is not very much in percentage terms (see Figures 1.1 and 1.2).

Figure 1. 1

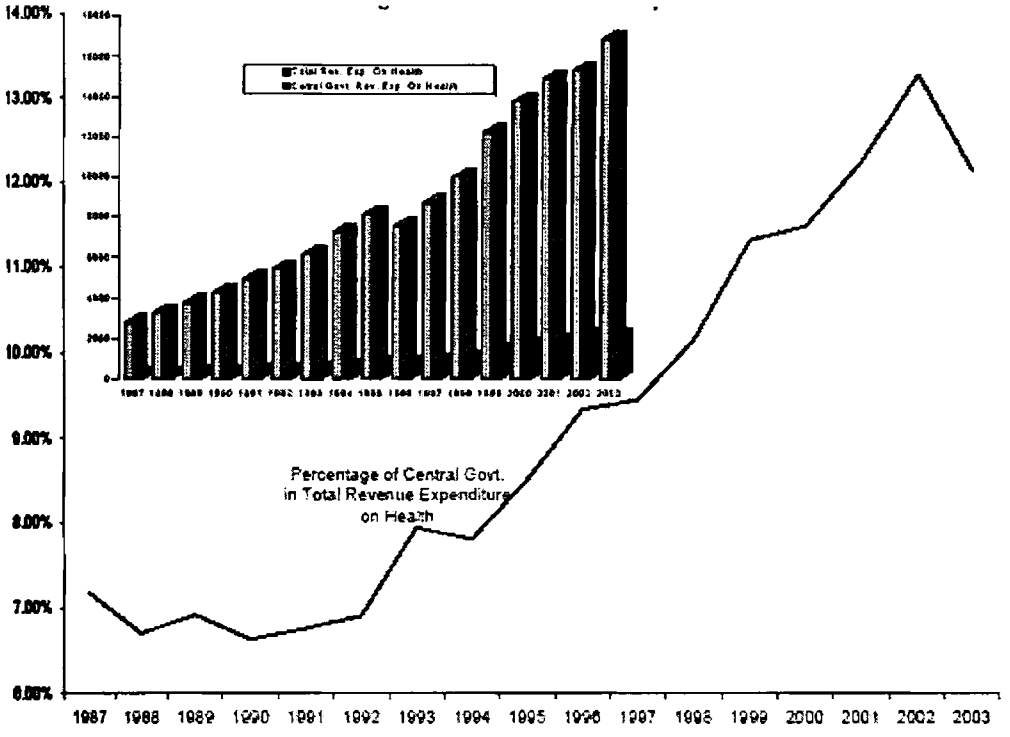
State government revenue expenditure on health



Source : Bhat,2004

Figure 1.2

Central government revenue expenditure on health

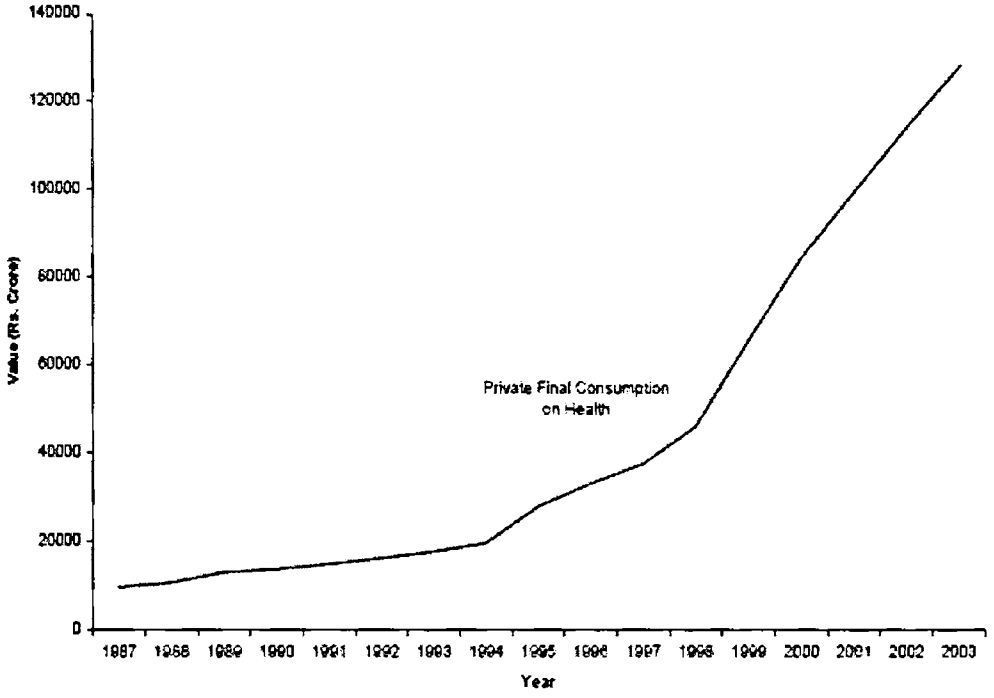


Source: Bhat, 2004

As compared with these allocations, the private expenditure on healthcare is increasing. In fact in the past five six years it has grown exponentially. From just Rs. 195 billion in 1994 it rose by more than five times to Rs. 1283 billion in 2003 (see Figure 1.3).

Figure 1.3

Private Final Consumption on Health



Source: Bhat,2004

Trend of Public Healthcare Expenditure at State Level

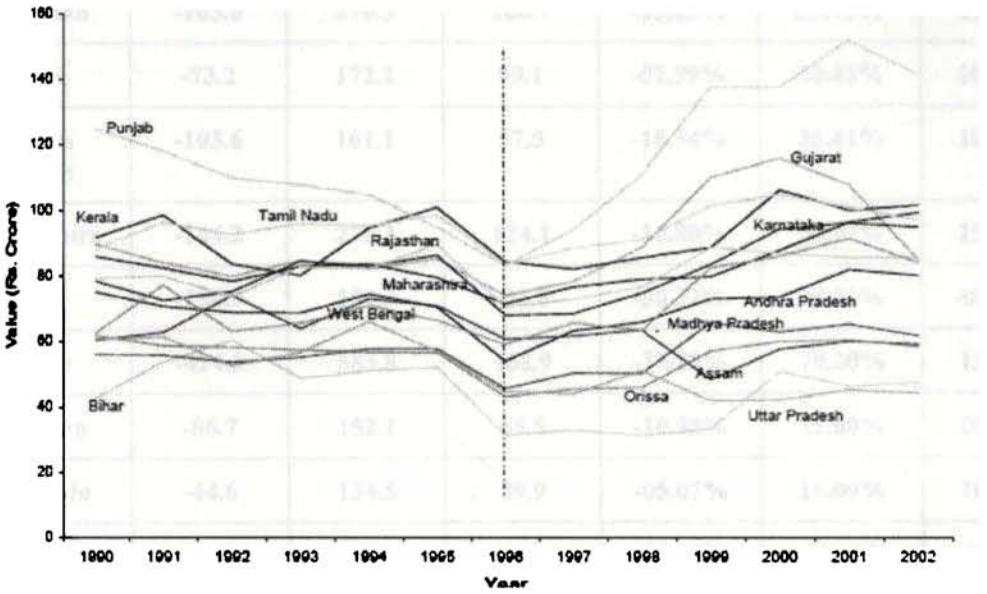
Government priority for health care expenditure is decreasing over the years in all the states. Investment in terms of public health expenditure as a proportion of total government expenditure is either stagnant or declining. The share of health expenditure in major states shows a significant decline in proportion of health expenditure to total expenditure – from the range of 6-7% up to the 1980s, it came down to just over 5% in the 1990s. (Selvaraju, 2000)[12]

A noticeable trend in public health care expenditure (PHCE) is that, around 1996 there was a sharp dip experienced by all states (Figure 4). After that PHCE again rose. Best example of this we can see in Punjab and Andhra Pradesh states. Bihar and UP two backward but one of the largest states shows that here also they have one of the lowest PHCE among all states consistently, even smaller states like Kerala and Assam spends more than these two states.

One reason of this can be that these two are one of the poorest states. States like Tamilnadu, Rajasthan and Maharashtra does not show much fluctuation in PHCE (Bhat and Jain, 2004)[13] So broadly, from the above graph we get the picture that PHCE does not vary much in time in different states.

Figure 1.4

Public Health Care Expenditure per capita



Source : Bhat 2004

Keeping in mind the sharp dip in 1996 if we divide the period being studied into two parts, from 1990 to 1996 and from 1996 to 2002, then we can actually try to see that by what extent PHCE varied in these two time periods and also for the whole time period. This analysis is presented in below.

Table 1.9

Growth of Public Health Care Expenditure (PHCE) Per Capita (in real terms)

States	Change *			Percentage change*		
	1990-96	1996-2002	1990-2002	1990-96	1996-2002	1990-2002
Andhra Pradesh	-211.1	263.4	52.3	-28.16%	48.92%	06.98%
Assam	3.4	-15.5	-12.1	00.56%	-02.56%	-02.01%
Bihar	-111.7	160	48.2	-26.25%	50.96%	11.33%
Gujarat	-156.6	110.3	-46.3	-17.48%	14.91%	-05.17%
Karnataka	-103.6	270.3	166.7	-13.23%	39.79%	21.30%
Kerala	-73.2	172.2	99.1	-07.99%	20.43%	10.81%
Madhya Pradesh	-103.6	161.1	57.5	-18.54%	35.41%	10.30%
Maharashtra	-144.2	278.3	134.1	-16.80%	38.97%	15.62%
Orissa	-186.9	154.3	-32.6	-30.32%	35.92%	-05.29%
Punjab	-414.9	583.8	168.9	-33.29%	70.20%	13.55%
Rajasthan	-86.7	152.1	65.5	-10.95%	21.60%	08.28%
Tamilnadu	-44.6	134.5	89.9	-05.07%	16.09%	10.20%
Uttar Pradesh	-160	-5.3	-165.2	-26.40%	-01.18%	-27.27%
West Bengal	-35.5	251.8	216.3	-05.69%	42.67%	34.64%
All India(States)	-107.8	160.8	53.1	-14.90%	26.14%	07.34%

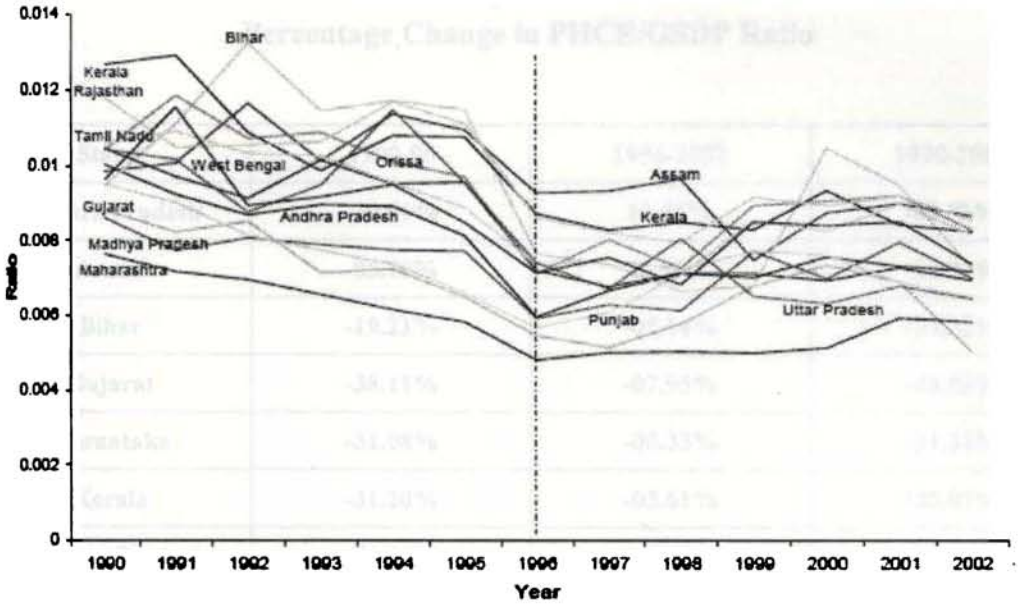
* - Figures are in Rs. millions
Source: Bhat,2004

Public health expenditure (PHCE) in real terms in the case of all the states except Assam went down during the period 1990-96. However, it increased during the period 1996-2002 for all states except Uttar Pradesh and Assam. Overall in this period PHCE increased for most of the states except Assam, Gujarat, Orissa and Uttar Pradesh. But if we observe per capita health expenditure as a percentage of per capita Gross SDP (both in real terms) for

the same period of time a different picture emerges. The percentage spending of State governments shows a declining trend (see Figure 5).

Figure 1.5

PHCE to GSDP Ratio



Source: Bhat,2004

Public Health Care Expenditure as a percentage of Gross State Domestic Product in the case of Bihar and Uttar Pradesh does not fare very badly. In fact Bihar comes across as one of the state with the highest ratio. Here big states like Maharashtra, Madhya Pradesh, Gujarat have not done well. States like Bihar, Assam, Andhra Pradesh and Punjab show very high fluctuation in PHCE to GSDP ratio while some states like Maharashtra and Gujarat do not show much fluctuation. We also see that in 1996 there is a blip but this must be the result of fall in PHCE in 1996. One thing which comes out from the above figure is that in almost all the states PHCE as a percentage of GSDP has not increased much during the past decade. During the period 1994 to 2002 health care expenditure as a percentage of Gross SDP had in fact is showing a declining trend.

If we divide the study into two parts, from 1990 to 1996 and from 1996 to 2002 (as already indicated), then we can actually try to see that to what extent PHCE as a percentage of GSDP varied in these two time periods and also for the whole time period (see Table 1.10)

Table 1.10

Percentage Change in PHCE/GSDP Ratio

States	1990-96	1996-2002	1990-2002
Andhra Pradesh	-40.51%	16.46%	-30.72%
Assam	-05.79%	-6.55%	-11.96%
Bihar	-19.21%	-05.14%	-23.36%
Gujarat	-38.11%	-07.95%	-43.03%
Karnataka	-31.08%	-00.33%	-31.31%
Kerala	-31.20%	-05.61%	-35.07%
Madhya Pradesh	-31.14%	18.24%	-18.58%
Maharashtra	-37.15%	21.36%	-23.72%
Orissa	-31.53%	16.30%	-20.37%
Punjab	-40.24%	44.05%	-13.91%
Rajasthan	-26.81%	-00.74%	-27.35%
Tamilnadu	-30.40%	-11.56%	-38.45%
Uttar Pradesh	-28.96%	-12.90%	-38.12%
West Bengal	-25.90%	03.49%	-23.31%

Source:Bhat, 2004

For all the states, PHCE as a percentage of GSDP went down significantly during the period 1990-1996. Similarly, for the period 1996-2002 again it went down except for Andhra Pradesh, Madhya Pradesh, Maharashtra, Orissa, Punjab and West Bengal. But on the whole, for entire period, it went down for all the states.

As stated earlier, Government priority for health care spending is decreasing over the years in all the states, which means that less and less money per capita is being spent by government on healthcare as a percentage of income (see figure 1.6).

Figure 1.6

Percentage Decrease in PHCE –GSDP Ratio

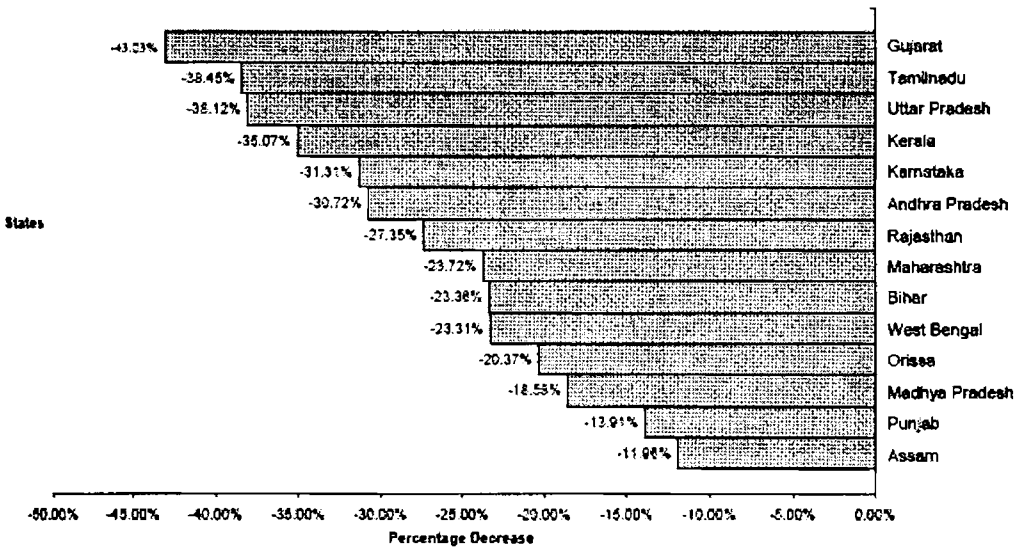


Figure 6: Percentage Decrease in PHCE - GSDP Ratio

The percentage decrease can be summarized as given in Table 1.11

Table 1.11

Classification of States Based on the Percentage Decrease in PHCE-GSDP Ratio

% decrease (1990-2002)	States
More than 40%	Gujarat
Between 30% and 40%	Andhra Pradesh, Kerala, Karnataka,Uttar Pradesh, Tamilnadu
Between 20% and 30%	Orissa, West Bengal, Bihar, Maharashtra, Rajasthan
Less than 20%	Madhya Pradesh, Punjab, Assam

Source : Bhat, 2004

Gujarat has maximum decrease in health care expenditure as a percentage of income. After that, most of the southern states and Uttar Pradesh showed decrease in the ratio. In the next category are eastern states and western states. Until 1996, Health Care Expenditure was decreasing at a rapid rate, and after that, there is an increase. The period from 1990 to 1996 witnessed some contraction on expenditure. India started liberalisation and new economic policy in 1991 and at that point of time economic situation of the country was in very bad state. Therefore, due to fiscal pressures, the expenditures got affected and healthcare expenditure was naturally adversely affected. However, after 1996, again, the situation improved and the country got over the expenditure contraction period.

Private sector in India

Structural adjustment programme initiated in the country has resulted in a reduction in government expenditure in the social sectors. This has a squeezing effect on health spending. This created diverse negative effects on the health status of the economically worse off section in particular. As the government, which was a major provider of health services moves out of the health sector, the private players come in. The pace of growth of private sector in the health sector accelerated during the SAP period. Of course, the physical access to private sector facilities is generally much better when compared with the public sector, particularly in rural areas. But their charges are prohibitive.

According to WHO spending in the private health sector accounts for more than 80 percent of the total spending (WHO, 2000)[14]. More than 57% of hospitals, 32% of hospital beds, 60% of dispensaries and 80% of registered doctors are in the private sector (Bhat, 1996)[15]. The sector dominates other forms of service provision – both government and NGO. Utilisation studies show that a third of in-patients and three fourths of outpatients utilise private

healthcare facilities (Duggal and Amin 1989[16]; Yesudian 1990[17]; Visaria and Gumber 1994[18]). (Adapted from Analysis of public expenditure on health using state level data Ramesh Bhat, Nishant Jain, Indian Institute of Management Ahmedabad, June 2004.)

Like in developed countries, health care expenditure in India is also steadily increasing. However, public health expenditure has been grossly inadequate right from the 1940s. The government has been spending less than private expenditures on health. The Bhore Committee report stated that per capita private expenditure on health was Rs. 2.50 compared to a state per capita health expenditure of just Rs. 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. Today also according to the latest figures the proportion of public expenditure on health to GDP in India is only 0.9 per cent of GDP while the average public spending of less-developed countries is 2.8 per cent of GDP. Only 17 per cent of all health expenditure in India is borne by the government, the rest is being borne privately by the people, making it one of the most highly privatised healthcare systems of the world.

Within India also we see that there is huge gap in different states in economic terms and also in terms of development of health sector. Ahluwalia (2000)[19] in his article raises this issue while analysing the performance of individual states. The paper states, "The economic performance of the individual states in post-reforms period has received less attention than it deserves in the public debate on economic policy. There is very lively debate in the academic world and in the press on our national economic performance and the success or failure of various aspects of national policies, but there is relatively little analysis of how individual states have performed over time and the role of state government policy in determining state level performance. The private health care sector in India is dominated by

clinics and small private hospitals or nursing homes. A study in Madras found that the average number of beds in private hospitals was 22 and a large number had fewer than ten beds. (Muraleedharan, 1999)[20]. The majority of hospitals (87%) are run for-profit. Around two-thirds depended on visiting consultants from the public sector to provide much of the care.

A substantial part of the private sector is informal. There is a large group of unqualified 'doctors' who practice mainly in rural and poorer urban areas. A recent newspaper report estimated the number of such doctors at more than 150,000 in Andhra Pradesh alone. (Tim and Rita, 2003)[21].

Private sector is more costly than the public sector (after leaving a margin for the under-the –table payments for staff in all cadres in a public hospital).Table 1.12 suggests that use of the private sector increases with increase in income (International Institute for Population Sciences, 2000)[22]. The income gradient is particularly apparent in the use of private hospitals. It is notable, however, that even amongst the lowest income groups majority obtain treatment from private providers.

Table 1.12

Utilisation of Services by Income Group

Type of hospital	Low(%)	Medium(%)	High(%)	Total(%)
Public	34	28.3	19	28.7
Private-hospital/clinic	24	30	37.8	29.2
Private/doctor	33.7	36.3	38.7	35.9
Private-other	4.8	3	2.3	3.5
Others- home,shop	2.8	1.7	1.3	2.1

Source: (International Institute for Population Sciences, 2000)

Data from the 52nd National Sample Survey (NSS) show that the proportion of people treated as outpatients in rural private sector health facilities has increased from 74 percent in 1986-87 to 81 percent in 1995-96; in urban areas it has increased from 72 percent in 1986/87 to 80 percent in 1995-96. In the case of inpatient care, the increases in rural and urban areas over the same period were 40 to 56 percent and 40 to 57 percent, respectively (NSSO 1998)[23]. Even more important to note is that the financial burden per episode in both public and private institutions has grown substantially. The average expenditure (at constant 1986-87 prices) for inpatient treatment per episode of illness in public institutions has gone up by 26 percent (Rs.912 in 1995-96) in rural areas and by 48 percent (Rs. 963) in urban areas. In the private sector, the increase in out-of pocket expenditure for inpatient treatment per episode is even more alarming: 63 percent in rural areas and 50 percent in urban areas over the same period at 1986-87 prices. (Muraleedharan and Nandaraj, 2003)[24]

Though the three-tier health system designed by the NHP was conceived in such a way that people could have direct access through the referral system right up to the prestigious and well- equipped apical institutions is itself attractive in practice, a vast majority never has access to such institutions and most of the time; they do not necessarily need it also.

The alarming level of fiscal crisis led to a steep fall in development expenditure in public health services and this affected the quality of service provided by this sector. A principal consequence of the declining quality of public health system during the 1980s led to the mushroom growth of private health practitioners in both rural and urban areas. The private sector accounts for about 80% of the health expenditure in the country. While the better off patronize private services almost exclusively, even the poorest 20% choose private practitioners in about 70% of the illness episodes. Choices are found to be related to the direct as well as opportunity cost of services and to the

perceived quality of care. The most frequent answers as to the reluctance to access a public hospital are

(i) time and cost of traveling to a PHC or a district hospital,

(ii) the long waiting hours at public health facilities,

(iii) the rude behaviour of the government staff, and

(iv) unavailability of medicines, etc.

While National Health Policy holds that private health sector should contribute to government health efforts, the reverse is found happening.

Regulation of the Private Sector

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 not followed any norms either with regard to use of physical infrastructure (space per bed, provision of certain utilities, etc.) and structural aspects of care (medical and paramedical personnel employed, services offered, etc). Given this situation, it is not surprising that there is hardly any recognition of the need for (clinical and non-clinical) performance assessment either from within private sector or policymakers.

Even now, India's health indicators are almost at the same level as of the average of low-income economies. This poor performance in the area of health has not caught the attention of many social scientists and national policy makers. This trend becomes more disturbing given the background that all these years we have been consciously trying to orient ourselves through a path of the twin objectives of growth with equity. India's poor health performance may be presumed to be associated with shortcomings in national development. Persistence of mass poverty, lack of awareness (which has a bearing on mass illiteracy), insufficient nutritional intake, persisting social inequalities often nullifies the effort of the government to provide primary health care.

Regulation occurs when a government exerts control over the activities of individuals and firms. More specifically, regulation has been defined as "government action to manipulate prices, quantities, (and distribution), and quality of products" (Maynard 1982)[25]. The exact "action" is often described as the regulatory intervention or regulatory mechanism and can be legal controls or incentives. Legal controls are legislated requirements that can lead to punitive action if they are not met. To be effective, regulation requires substantial information and enforcement machinery. The regulatory process involves setting the policy agenda, designing the legislation, and implementing and enforcing its requirements. Regulation serves to discourage perverse practices and to improve equity.

The studies by Bhat, Jesani and Nandraj (Bhat 1996[26]; Jesani 1996[27]; Nandraj 1994[28]) found that the factors that contribute to the poor quality of services offered by the private sector are lack of monitoring by authorities, outdated and inadequate legislation, and the inability or failure of the government to enforce existing regulations. The respective medical councils in states in India are not enforcing the laws relating to the registration and licensing of individual practitioners. This situation has required the judiciary to intervene in affairs that should have been handled by the medical councils. The studies also indicated that professional bodies, whether sanctioned by government or voluntary medical associations, have not played a significant role in improving the practices of private medicine.

All of the studies reveal the absence of laws and regulations governing the practices of laboratories, polyclinics, diagnostic centers, and the various types of health care centers related to other systems of medicine. Where laws do exist, they are inadequate and are not being enforced. The current laws do not provide a framework to ensure that private providers are maintaining minimum standards. Furthermore, there is no law regulate the geographical

distribution of providers, the types of technology to be made available, the way charges are levied, or the prices themselves.

The studies by , Bhat, Jesani and Nandraj[29] also show that there is an abundance of medical equipment and technology in urban areas compared with rural areas, leading to excess capacities. Such an influx of technology may have led to irrational use of medical equipment and services, though this has not been systematically analyzed in India. Yet unnecessary investigations, referrals, and hospitalizations inevitably occur where there are known kickbacks between referring practitioners, hospitals, and laboratories. In many hospitals, doctors are under pressure to see that the beds are occupied all the time and the equipment utilized fully. Many hospitals fix the amount of business that a physician or surgeon has to bring in over a certain period. An oversupply of doctors in the private health sector has also created unhealthy competition that has led to unnecessary or excessive medication of otherwise healthy people (Nandraj 1994)[30].

The failure of the government to enact the necessary legislation and strengthen existing laws permits many of these market imperfections to proliferate. In many instances, powerful medical lobbies have opposed the government's efforts to regulate. Many state governments that wanted to enact and implement legislation governing private hospitals found their efforts thwarted.

In India, with its dominant private health sector and relatively weak government oversight, there is a need to develop self-regulatory systems that involve the stakeholders and that are less threatening to providers than government regulation. One of the foremost steps for any intervention or involvement would be to develop an appropriate information base on the private health sector. Many governments are handicapped by lack of proper information on this dominant sector. Information on private providers could be

linked with registration and licensing mechanisms. Bennett and Muraleedharan (1998)[31] pointed out the poor communication between the Department of Health and the various statutory self-regulatory bodies in India. Improving communication between the various members of regulatory bodies seems to be crucial if the government wishes to improve regulatory performance.

Until recently, professional bodies exercised regulatory authority over medical and allied professionals in India. Although several explanations can be given for their lack of control over their members, it cannot be denied that they were also constrained in their performance by lack of autonomy and certain external factors, such as civic-public interactions, political structures, and preference. However, they also clearly suffered from lack of motivation and self-interest, which undermined their efficacy.

Health Indicators - India and her States

India is a collage. It is a unique case of endless diversity – of population, culture, topography, climate, socio-economic settings, etc. The health scenario also reflects this diversity. When the health and social indicators of eighteen major states of the country are compared, the disparity becomes clearer.

Table 1.13

Socio-economic and Demographic Indicators – India and her States

States	Socio-economic indicators			Demographic indicators				
	Population	Poverty	Literacy	Birth	[2]TFR	Death	IMR	LE
Andhra	66.3	27.2	45.1	25.9	3.7	9.5	81	58
Assam	22.3	36.84	53.4	29.4	4.1	10.4	91	52
Bihar	86.3	53.57	38.5	34.3	5.4	12.1	91	53
Gujarat	41.2	32.33	60.9	28.7	3.9	9.7	86	58
Haryana	16.3	16.63	55.3	35.2	4.6	8.5	82	60

[2] Total Fertility Rate (TFR) is the average number of children a woman will bear in her lifetime.

North and Central India (Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh, sometimes called the BIMARU States) lag substantially behind the rest of the country, not only in fertility reduction, but also in the spread of primary education, improvements in health, and the status of women.

When we compare the social and demographic indicators of Kerala, with the rest of the states of the country, we can see that the state stands apart from the rest in its achievements. (Table 1.14)

Table 1.14

Demographic and Health Indicators – India and her States

Major States	*MMR/ lakh of live births	*Life expectancy at birth 1991-6		*% of birth attended by TBA	**CBR	*CDR	*IMR	#TFR	*Under 35 mortality rate
	1997	Male	Female	1999	1999	1995	1998	1995-98	1993-98
Andhra Pradesh	380	61.4	64.5	54.0	22.3	8.3	66	2.25	85.5
Assam	401	58.7	58.5	30.2	27.7	9.6	78	2.31	89.5
Bihar	707	60.8	60.1	13.8	31.1	10.5	67	3.49	15.1
Gujarat	29	60.9	62.7	41.6	25.3	7.6	64	2.72	85.5
Haryana	105	65.2	64.2	25.5	27.6	8.0	69	2.88	76.8
Himachal Pradesh	-	-	-	37.8	22.5	8.6	68	2.14	42.4
Karnataka	195	64.2	65.3	52.5	22	7.6	58	2.13	69.8
Kerala	87	68.6	75	96.6	18.2	6.0	16	1.96	18.8
Madhya Pradesh	498	59.2	58	24	30.6	11.1	97	3.31	137.6
Maharashtra	135	64	65.9	52.8	22.3	7.40	49	2.52	58.1
Orissa	498	60.1	58.4	20.9	25.7	10.8	98	2.46	14.4
Punjab	196	66.6	66.5	40.2	22.4	7.3	54	2.21	72.1
Rajasthan	677	60.5	61.3	21.8	31.5	9.10	83	3.78	114.9
Tamilnadu	76	62.3	63.1	76.3	18.9	7.9	53	2.19	63.3

Uttar Pradesh	707	57.1	52.8	16.8	32.4	10.4	85	3.99	122.5
West Bengal	264	61.9	61.9	37.4	21.3	7.70	53	2.29	67.7
India	408	60.6	61.7	35.0	26.1	8.7	70	2.85	94.9

Source: * -Annual Report, MHFW, GOI
** - Annual Report, 2000-1, MHFW, GOI
#- National Family Health Survey (NFHS -2), 1998-9
MMR, CBR, CDR, IMR ,TFR- notes

When the gender specific health indicators like Maternal Mortality Rate (MMR) and percentage of birth attended by trained health attendants are considered, the gap is found to be still more glaring.(Table 1.15)

Table 1.15

Gender Specific Health Indicators

States	MMR 1997(/lakh)	% Of birth attended by trained health personnel 1999
Andhra Pradesh	380	54.0
Assam	401	30.2
Bihar	707	13.8
Gujarat	29	41.6
Haryana	105	25.5
Himachal Pradesh	-	37.8
Karnataka	195	52.5
Kerala	87	96.6
Madhya Pradesh	498	24
Maharashtra	135	52.8
Orissa	498	20.9
Punjab	196	40.2
Rajasthan	677	21.8
Tamilnadu	76	76.3
Uttar Pradesh	707	16.8
West Bengal	264	37.4
India	408	35.0

Source: Annual Report, 1999-2000, Ministry of Health and Family Welfare, GOI.

This achievement was not accomplished overnight. It is the result of the strong foundation in health care delivery system, which the rulers of erstwhile Thiruvithamkur, Kochi and Malabar had laid. It is the result of the scientific education that the people of the state had received from a very early time vis-à-vis the other states of the country. It is the result of the political understanding of the common masses, which had taken place in the state vis-à-vis the other states of the country. It is the result of the unique nature of development, which had taken place in the state, which had involved the entire cross section of the society and which was not confined to the upper class alone. Development, here is not skin-deep. It is a universal phenomenon.

Notes

1.Public Health Expenditure (PHE) is the sum of outlays on health paid for by taxes, social security contributions and external resources (without double-counting the government transfers to social security and extra-budgetary funds)

Maternal Mortality rate (MMR) is defined as the annual number of deaths among women aged 15-49 from complications of pregnancy and childbirth , per 100,000 women in this age group.

Crude Birth Rate (CBR) is defined as the number of births over a given period divided by the person-years lived by the population over that period. It is expressed as number of births per 1,000 population.

Crude Death Rate (CDR) is defined as the number of deaths over a given period divided by the person-years lived by the population over that period. It is expressed as number of deaths per 1,000 population.

Infant Mortality Rate (IMR) is defined as the annual number of deaths among children under age one per 1,000 live births.

Total Fertility Rate (TFR) is defined as the average number of children a woman will bear in her lifetime.

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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)[1].

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)[2]. 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)[3] 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)[4], 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

Place of treatment	%
Self-treatment	8.57
Government hospitals	28.57
Private hospitals	58.01
Others	4.76

Source: Changes in the Health Status of Kerala 1987 – 1997, T.P. Kunhikannan, K.P.Aravindan, 2000.

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

Adequate care in private hospitals	23
Nearness to private hospitals	15
No medicines in government hospitals	14
Better behaviour from doctors and staff in private hospitals	13
No treatment from government hospitals	10

No doctor in government hospitals	10
Bribery in government hospitals	5
No cleanliness in government hospital	3
Other reasons	7

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

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 seizes 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, round 60% of the deliveries take place in private hospital. Only 40% of the deliveries take place in public health care facilities.

Table 2.3

Place of Childbirth, 1987 and 1996

Place of Child birth	1996	1987
Home	2.9	21.2
Private hospital	58.3	41.5
Government hospital	38.8	36.9
Others	0.00	0.4
Total	100.00	100.00
Unaccounted	00	40

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)[5]. 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.

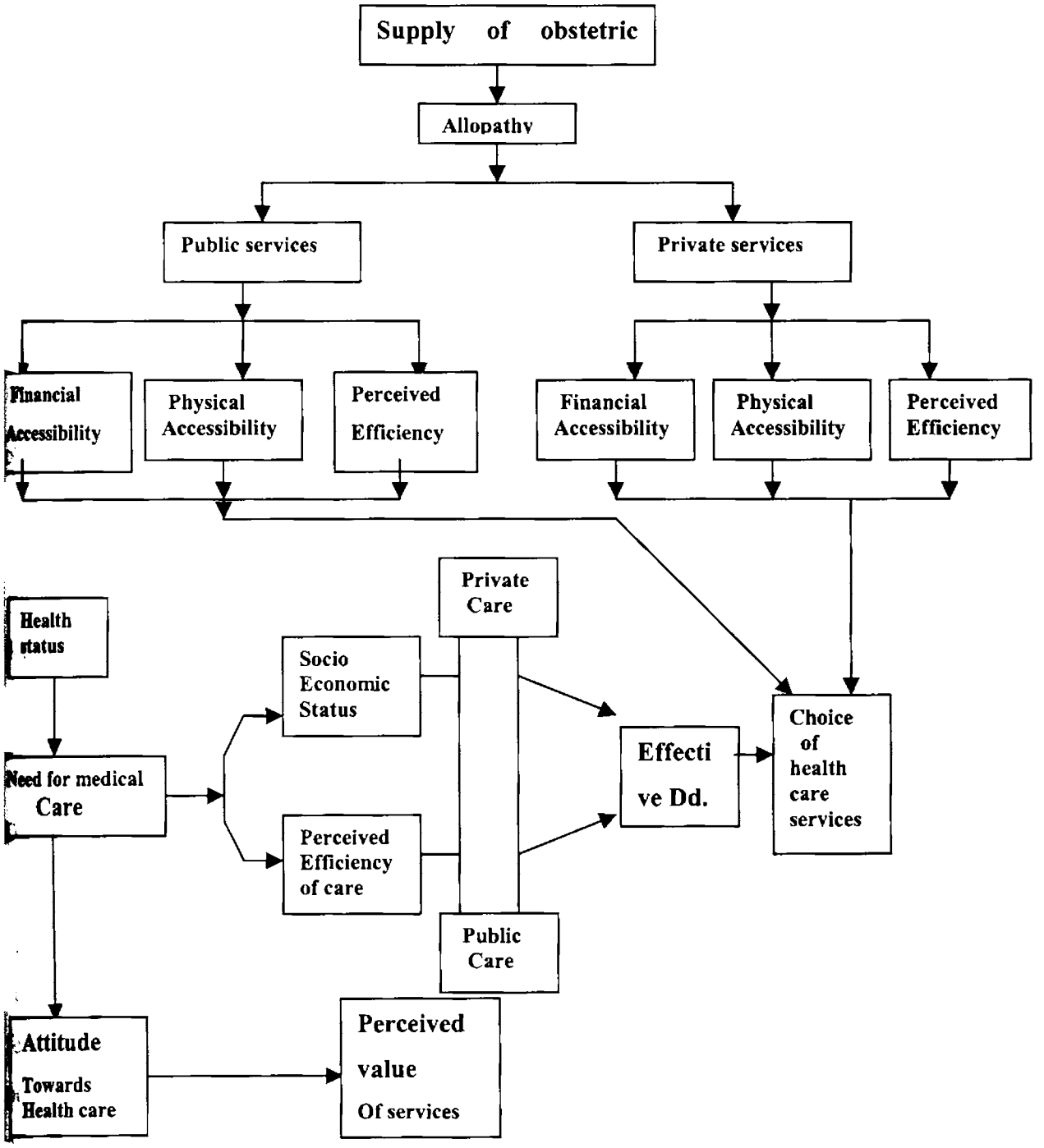
These are the factors, which will influence the decision as to which hospital to choose – the public hospital or the private hospital. In the usual case, the first step would be the choice – whether to utilize a service or not. In the case of obstetric care in Kerala, where the percentage of institutional 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



Statement Of The Problem

There is a definite bias in favour of private hospitals as far as obstetric care 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

Districts	Number of institutions
Trivandrum	431
Kollam	369
Pathanamthitta	257
Alappuzha	367
Kottayam	474
Idukki	239
Ernakulam	542
Trichur	288
Palghat	180
Malappuram	237
Kozhikode	372
Wayanad	111
Kannur	264
Kasaragod	157
State	4288

ource: Compiled from the *Report on Private Medical Institutions in Kerala*, Dept. f economics and statistics, 1996

The district has the largest number of doctors (Post graduates, raduates and below graduation), nurses, pharmacists, attenders, lab chnicians, X-ray technicians, scanning technicians, radiologists and attenders mployed in the allopathic sector.

Table 2.5

District-wise Break-up of Details of Manpower in Allopathic Medical Institutions

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

Source: 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)[6] 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)[7] 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

Number of Private for-profit hospitals considered			
Small type	**Medium type**	**Large type**	**Total**
50	18	12	80

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] Under standing 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 of 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)[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) [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)[13] Consequently, there is much controversy surrounding the conceptualization and measurement of health. (Alan Clarke, 1999)[14]

The definition of health goes beyond the idea of being free from illness, its cure, and prevention. Over time, it has evolved in to 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, *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)[22], 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)[23], '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)[24], '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)[25].

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)[26].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)[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)[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)[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)[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)[31], which means, the provision of integrated preventive, curative and promotional health services

from 'womb to tomb' to every individual residing in a defined geaographical area.

However, Monica Das Gupta and Lincoln.C.Chen (1996)[32] 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)[33].

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)[34]

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 is 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 needs 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)[40]

Gerald Bloom, 2000[41] explores the implications for health policy of the segmentation of society in to 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)[42]

Access to health care with equity and universal coverage is critically linked with public financing of health care services (Duggal,Ravi,2005)[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)[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 5th and 7th 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 set back 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)[45]

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)[46]. 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)[47] 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 Repeat P 35

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)[59]

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)[60]

T K Sundari Ravindran, (2005)[61] 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)[62] 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)[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)[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 subsides 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)[71]

Homan and Thankappan,(1999)[72], 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)[73]

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)[74]

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)[75]

'Guidelines for Monitoring the Availability and Use of Obstetric Services', 1997[76], 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)[77] 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)[78], 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. (Homan 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. (Varatharajan 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)[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)[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)[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)[96]

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)[97]

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)[98]. 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)[99]

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)[100]

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)[101].

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".

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)[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)[111]

Miika Linna and Unto Häkkinen, (1998)[112], 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)[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)[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 'I'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)[115]

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.

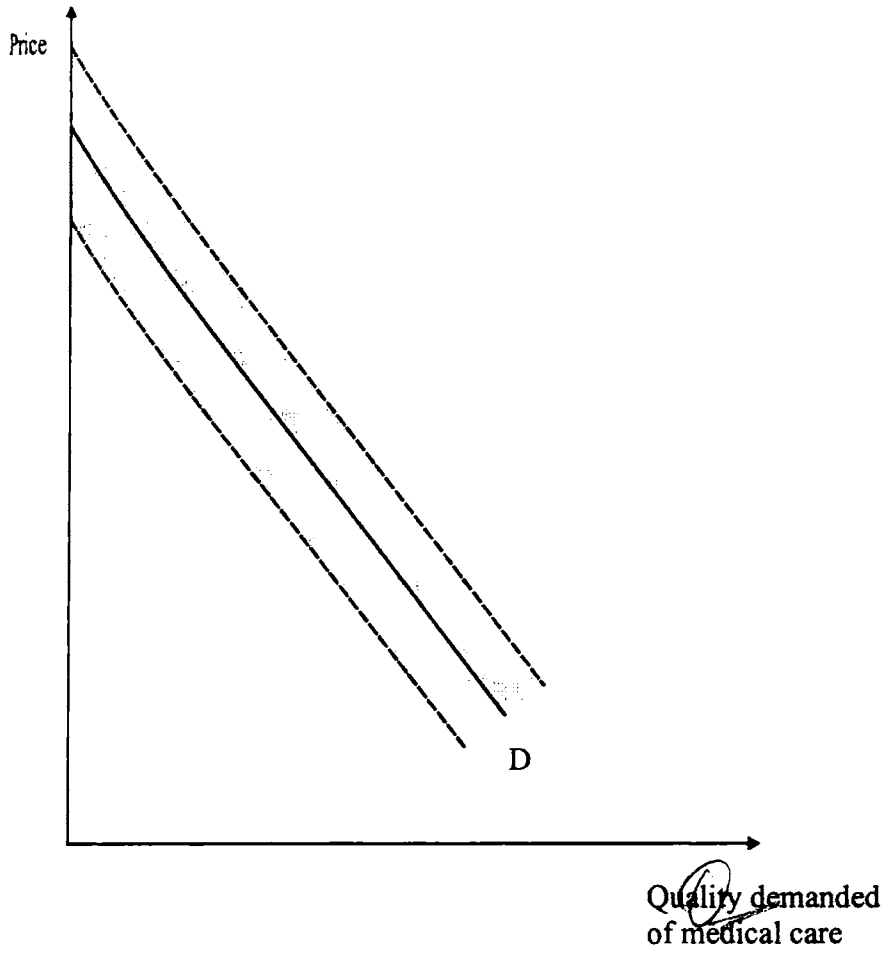
Medical care is an all-important component of health services. Demand for medical care is a derived demand and depends on the demand for health and extent to which medical care influences the production of health. The relation between medical care and health is far from exact. That is because of lack 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

in 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 guage 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[118]; Gerdtham *et al.*, 1992[119]) found the elasticity greater than one while many other studies (McLauglin, 1987[120]; Di Matteo and Di Matteo, 1998[121]) found elasticity much less than one.

Getzen (2000)[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.

Health Care System

Health care system is intended to deliver health care services. A health care system consists of organistional 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 in to 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)[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.

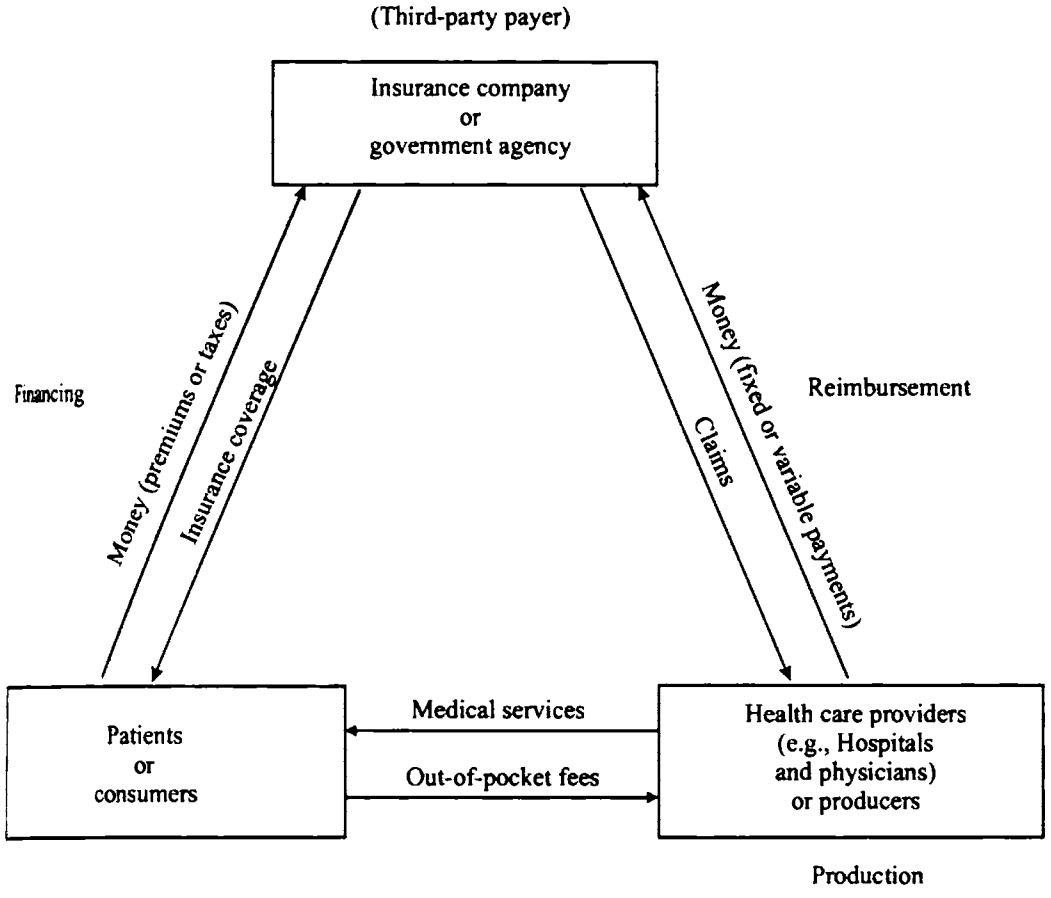
The diagram shows the three major players in the health care system: patients or consumers, health care providers or producers, and third-party payers or financial intermediaries. The figure also illustrates the three elements common to all health care systems – financing, reimbursement, and production 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]

Fig 2.2

A model of health care system

(Third party payer)



Source: Rexford and Stephen,2000

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.

Quantity demanded = f (out-of-pocket price, real income, time costs, prices of substitutes and compliments, tastes and 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 services 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.

2. **Specialties offered; and**

3. **Bed size.**

With the existing data source we can separate the government from nongovernmental 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)[126].

As Thomson (1994)[127] 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)[128] 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)[129]. 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. (**V.R.Muraleedharan, 1995-96)[130]

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) [131]

Failure In Service Delivery

"The fact that ill health reinforces poverty is less understood than the view that poverty causes ill health" (Shariff, 1999b)[132]. 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)[133]

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?

	Government failure	
	High	Low
High	Ambigous, 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 decentr-liation, 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	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
Low	Private provision and financing with appropriate public regulation or education	Private provision with appropriate regulation, and equity-driven interventions informed by potential private responses.

Source : World Development Report, 2004

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[134], Uplekar, Mukund, 1989b[135], Vishwanathan, H. and J. E. Rohde[136], 1990, Yesudian, C. A. K. 1990[137], Duggal, Ravi and Suchetha Amin. 1989[138])

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)[139]. 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)[140], the effectiveness of these regulations and policies has always remained a problem due to various reasons. (Bhat, Ramesh. 1996)[141] 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 health care sector.
- There has been considerable amount of resistance from various constituents of the private health care 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)[142] these factors and their analytical orientation may be summarized as follows:

Table 2.8

Analytical Orientations or Approach to Health Seeking/Utilization Behaviour

The economic	In which attention is concentrated on the impact of financial barriers in health seeking
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
The socio-demographic	In which the emphasis is on the significance of gross characteristics like gender, age, and education for utilisation of services
The geographic	In which the focus of attention is between geographical proximity of health services and utilisation
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
The socio-psychological	In which the emphasis is on the link between individual motivation, perception and learning and utilisation behaviour

Source: Helen Ward et al (1997)

On the lines of the above analytical categories, several scholars have tried to develop health care demand and utilisation models. Kroeger (1983)[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

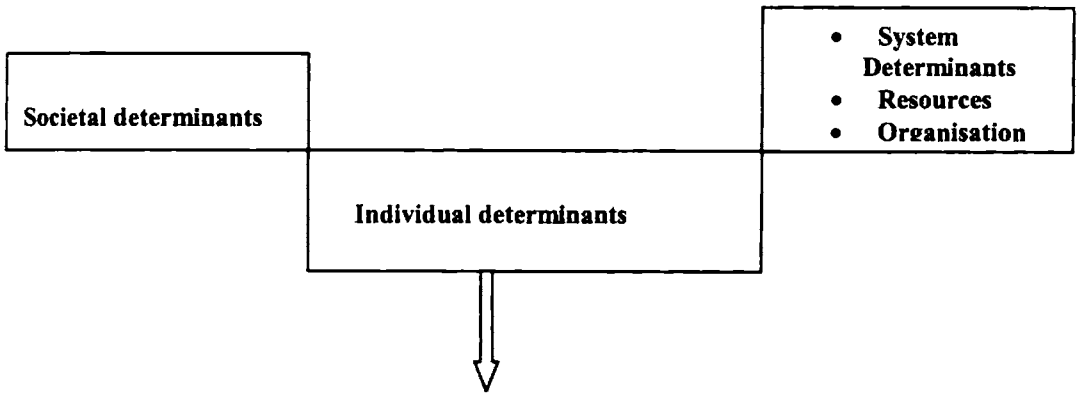
utilisation, which they claimed, to be a structural model for health care utilisation. (Anderson.R, Newman.J.F, 1973)[144].

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 in to three categories. They are 1) pre-disposing variables – which are divided in to 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



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

Source: Anderson and Newman, 1973

Individual Determinants of Health Service Utilization

Pre-disposing variables, which are subdivided in to 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)[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)[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)[149]. 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)[150] study of National Health Service hospitals, and in studies of U.S. facilities by Goldman and Grossman (1983)[151] and Frank and Taube (1987)[152]. Economic inefficiency can be accommodated by estimating non-minimum cost functions. For example, Wouters' (1993)[153] cost functions for Nigerian health centres include an economic inefficiency variable estimated from a production function. Eakin and Kneisner (1988)[154] 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)[155]. 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)[156] and Vitaliano and Toren (1994)[157]. The key limitation of this method is that it relies on untestable assumptions about the distribution of the error components (Newhouse 1994)[158]. 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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Chapter III

Kerala – A State At Par

Kerala is one of India's 25 states, situated in the southwestern tip of the country. It was formed in 1956, by integrating the Malayalam-speaking states of Travancore and Cochin and the British province of Malabar. Kerala's coastal area and its somewhat isolated location contributed to the state's very specific climatic, religious, socio-political and economic characteristics. Its location allowed Kerala since very early to maintain contact with foreign cultures, and kept it little affected by the many wars that took place in India (Pillai, 1994)[1].

The State occupies 1.18% of the total land area of the country and has a population of 30 million, which is about 3.44% of the population of India as per 1991 census. With a population density of 740 persons per square kilometer, Kerala is one of the most densely populated regions in the world.

The state of Kerala has occupied an eminent position in the development debate since the early 1970s, when its government implemented a singular development strategy. Unlike most developing economies, Kerala's policy-makers followed a successful 'basic-needs-first' strategy, which prioritised the improvement of socio-economic standards of its population (in terms of education, health, food and social security) and implemented an extensive land reform, which has been widely viewed as one of the most successful outside socialist countries (Heller, 1995)[2]. Due to this development strategy, Kerala's quality of life indicators (literacy, life expectancy, infant mortality, death and birth rates) compare today quite favourably to those of many industrialised nations (Table 3.1).

Table 3.1

Quality Of Life Indicators

[illegible]	Kerala	India	Low-income countries	United States
[illegible] rate/1000(1995)	18.0	28.3	39.8	22.8
[illegible]	18.1	30.0	-	-
[illegible]	17.7	22.7	-	-
[illegible] rate/1000(1995)	6.0	9.0	9.0	5.9
[illegible]	6.0	9.8	-	-
[illegible]	6.0	6.6	-	-
[illegible] mortality rate/1000(1996)	13.0	72.0	69.0*	6.0
[illegible]	13.0	78.0	-	-
[illegible]	13.0	46.0	-	-
[illegible] expectancy(1989-93)	72.0	59.4	63.0*	77.0
[illegible]	68.8	59.0	62.0*	73.0
[illegible]	74.7	59.7	64.0*	79.0
[illegible] rate (%) 1991	89.8	52.2	41.0	>95.0
[illegible]	93.6	64.1	46.0	>95.0
[illegible]	86.2	39.3	35.0	>95.0

Source: CSO (1998), Selected Indicators of India, 1996-97; GOK (1998), Kerala's Economic Survey 1995-96; World Development Report, 1997 and 1999-2000; Human Development Report 1997.
Notes: 1. Refers to 1997. 2. Refers to 1994. 3. Refers to 1999.

More remarkable is the fact that these policies were implemented in the context of a very poor economy: Kerala's net state domestic product was, in 1999,

ow the India's average and was around half of Maharashtra's domestic income able 3.2).

Table 3.2

Per Capita State Domestic Product At Factor Cost,At 1980-81 Constant Prices, In Selected Indian States

Year	Kerala	Maharashtra	Tamilnadu	West Bengal	India*
1970	1325	1836	1317	1488	1387
1980	1508	2435	1498	1773	1579
1990	1815	3483	2237	2145	2112
1995	2233	4686	2879	2745	2493
1996	2312	4818	2993	2887	2619
1997	2400	4933	3201	3082	2684
1998	2509	5003	3291	3251	2761
1999	2591	5396	3488	3443	2876
Average growth 70s	0.4	2.8	1.9	0.2	0.6
Average growth 80s	1.5	3.9	3.9	1.9	3.1
Average growth 90s	4.1	5.1	5.1	5.4	3.2

Source: India National Accounts.

Note: * - Refers to the average values for the 14 major Indian states represented in the table.

As a result of the development strategy followed, income- poverty that was, in 1973-74, well above the all- Indian average, has decreased significantly during the last three decades (Table 3.3).

Table.3.3

Income Poverty And Inequality In Kerala And India, 1973-2000

	Headcount index				Gini coefficient			
	Rural		Urban		Rural		Urban	
	Kerala	India	Kerala	India	Kerala	India	Kerala	India
1973-1974	62.06	55.72	62.72	47.96	0.320	0.285	0.376	0.308
1977-1978	52.66	50.60	56.05	40.50	0.359	0.309	0.404	0.347
[illegible]	43.70	45.31	44.72	35.65	0.339	0.301	0.394	0.341
1987-1988	34.67	39.23	38.02	36.02	0.317	0.301	0.364	0.356
1993-1994	31.07	36.66	23.07	30.51	0.301	0.286	0.343	0.343
1999-2000	9.40	26.80	19.80	24.10	0.270	0.258	0.324	0.341

Source: 1973-74 to 1993-94 data from Özler, Datt and Ravallion (1996), World Bank. 1999-2000 headcount indices from Deaton (2001). 1999-2000 Gini coefficients from National Human Development Report 2001, Planning Commission, Government of India.

The growth of the economy in Kerala State has been sluggish and seems to have been locked in to a very low level of per capita income.The state has very little to show in the way of major strides in economic development and changes in the structure of the economy. However, a combination of redistributive policies in land, the main productive asset of the poor, a public food distribution system, a selective programme of housing, outlays on expanding a protected water supply system, and generous investments in a public education system, have helped to some extent to protect and improve the well being of the mass of the population. It is in this setting that the unusual health profile of the Kerala State which stands out in such sharp relief from the national average for India can best be understood. (WHO, 1994)[3]

India's human development report places Kerala on top of all states in India. The state can easily be compared with middle-income countries of the

rld. Her success in human development is largely attributable to her remarkable ievements in the fields of health, literacy and primary education.

Medical care and public health claimed an increasing proportion of the te budget from early times. As early as the sixties of the nineteenth century, the vernment of Travancore allotted a little over 1% of its total expenditure to the alth care sector. The proportion increased to 2% by the close of the century. The are of this sector steadily rose during the early decades of the 20th century till the rease was brought to a halt during the great depression. However, in absolute rms, it was seen that the amounts spent on health care more than doubled tween twenties and forties, as can be seen from table 3.4.

Table 3.4

Expenditure on Health Care, Travancore (Annual Average Rs. Lakhs)

Period	Medical and Public health	Grand total of government's expenditure	% share of health care
1863-68	0.47	42.69	1.09
1870-78	0.96	51.91	1.84
1890-94	1.70	80.59	2.11
1905-10	4.65	107.96	4.31
1910-20	6.26	156.39	4.00
1920-30	9.41	220.14	4.27
1930-40	12.82	254.74	5.03
1940-48	24.67	546.11	4.14

Source: (Panicker and Soman 1985)

Public expenditure on health, which came to a little over 1 percentage of the state income by 1957-58, rose to 2% by the beginning of seventies. This compared

favorably with the position in most developing countries. Over these years Kerala developed a wide medical care network. This included private sector and public sector as well as indigenous and western system of medicine. (Panicker and Soman 1985)[4]

Hospital is an economic institution with a social role. Without referring to what hospitals are, what hospitals do and how they perform, discussion on the problems in medical and health care becomes difficult, if not impossible. Economics of the hospital sector has received wide attention because it has been the major consumer of health care expenditure, accounting for about 40-60% of gross health care expenditure in many countries. It is true even developing countries where the health system is often hospital dominated.

Government hospital sector in India is now faced with the problem of resource strap because overall allocations to health *per se* is coming down after 1991, when the New Economic Policy came into existence. Share of the government in health care expenditure has been cut down from 25% in 1990 to 12% in 2001. This is happening when the cost of hospital care is increasing at an alarming rate than the index of general commodities due to application of more expensive technologies to medical care and the acceptance of IPR.

The people of Kerala depend mainly on three major systems of medicine, viz. Allopathy, Ayurveda and Homoeopathy. Among them, modern medicine (Allopathy) accounts for the highest share, with 82% of the population opting for it as the system of treatment. Ayurveda accounts for 11% and Homoeopathy for 7%.

Juxtaposed is the increase in demand for hospital services due to greater awareness, increased institutional deliveries generated by Reproductive and Child

ealth (RCH) programme, ageing of the population due to demographic transition nd community empowerment owing to decentralisaton and democratization.

Kerala has received much attention from scholars' world over because of s unique development experience. The state has become an 'enigma' and a paradox' to many economists and development experts. Kerala has confounded he widely accepted principle that improvement in the standard of living of rdinary people can come about only after the achievement of rapid economic evelopment. Over the past fifty years, Kerala has been transforming from an remely poor state ridden with caste and class conflicts and burdened by high rth, infant mortality and population growth rates in to a social democratic state ith low birth, infant-mortality and population growth rates and a high level of teracy. Kerala's achievements in social development are comparable to many so-alled developed nations. The achievement of high quality of social life despite he low level of economic growth is not an end in itself. Enhanced social onditions, including alleviation of poverty, have been attained along with eductions in both spatial and gender gaps (between rural and urban areas, and etween males and females) – two regressive trends that characterize most of the eveloping societies. Most significantly, Kerala's economic and social ransformation took place without any external help. Kerala, described by the *Scientific American'* as 'A Mystery inside a Riddle inside an Enigma', (India eing the enigma and Kerala the mystery) is definitely a state at par among the ther states of India. William M Alexander likes to identify the state as 'A normal Kerala within an abnormal India'.

It is the state's unique development experience that makes this status ossible. When one considers the GDP related development indicators Kerala ccupies a very depressing position when compared with the rest of India. But, ccording to the more 'realistic and social' alternative indicators of development

which has a definite distributive angle to it) like Physical Quality of Life dicator (PQLI), or Human Development Index (HDI) and the Gender velopment Index (GDI), the state of Punjab, whose per capita income is more an double that of Kerala, is rated 23PQLI points fewer in1991. In the same year, erala's PQLI rating was 53 points higher than all India average.

This unique model or to be more realistic, development experience is fined as (Franke and Chasin, 2000)[5]:

- A set of high material quality-of-life indicators coinciding with low per-capita incomes, both distributed across nearly the entire population of Kerala.
- A set of wealth and resource redistribution programmes that have largely brought about the high material quality-of-life indicators.
- High levels of political participation and activism among ordinary people along with substantial numbers of dedicated leaders at all levels. Kerala's mass activism and committed cadre were able to function within a largely democratic structure, which their activism had served to reinforce.

Right from the time of formation of the Kerala state, the health status of the people of the regions from erstwhile states of Travancore, Cochin and Malabar districts were found to vary widely. Travancore and Cochin had much lower mortality and higher life expectancy rates when compared with Malabar region. The significance of the Kerala experience lies in the fact that these differentials could be narrowed down and further improvements could be made in a short time period of less than three and a half decade.

Kerala model can be viewed as a set of physical quality of life indicators, which puts it ahead of the other states. This is shown in Table 3.5.

Table 3.5

Physical Quality of Life Indicators - Kerala, India and Rest of the World

Indicators	Kerala	India	Low-income countries	United States
Per capita GNP in US$	324	390	350	28,740
Pc GNP at PPP	1,371	1,650	1,400	28,740
Adult literacy rate as% of total adults				
Males	94	65	65	96
Females	87	38	41	96
Life expectancy in years				
Males	67	62	58	74
Females	72	63	60	80
Infant mortality rate per 1000 live births	13	65	80	7
Rural	15	82		
Urban	7	45		
Birth rate per 1000	18	29	40	16
Maternal mortality ratio		4.1		
Total fertility rate	1.8	3.2	3.2	1.7

Source: Franke and Chasin, 2000

Kerala's IMR was well below the average of 36 deaths per thousand live births for upper middle-income countries of the world. While the per capita GNP of upper middle-income countries of the world was 4370 U.S. dollars, the per capita GNP of Kerala was only 275 U.S. dollars below the overall India average of 350 U.S. dollars. Most studies of Kerala's better health attribute the main cause to female education. High female education is thought to result in the high utilisation of both government and private health facilities. Kerala state stands out as a state with a large supply of hospitals and hospital beds relative to its population (5.3

as 3.3 times the all India ratio in 1991). This well-developed hospital sector is specially striking given the State's overall level of economic development. Kumar and Thankappan, 1999)[6]

There are other socio-economic factors unique to Kerala, which have made Kerala's health model possible. Kerala has a high literacy rate, especially female literacy rate when compared with the rest of India. (Table 3.6) Population, environment, genome and social organization are now considered as the basic determinants of health.

Table 3.6

Literacy Rate – Kerala, India

Literacy rate	Kerala (%)	India (%)
Adult - Males	94	65
Adult - Females	87	38

Source: Compiled from Govindan Parayil,2000

This factor has also reflected in the low Infant Mortality Rate in the state, which has shown an inverse relationship with female literacy.

Kerala has a political climate wherein the rights of the poor and the underprivileged have been fought for. This was the result of the long periods of struggle for social reforms emphasizing the dignity of the people, which later found expression in secular-democratic movements culminating in nationalist and socialist movements. One common thrust of all such movements was on education and organization of the downtrodden people. The PDS guaranteed a certain amount of nutritional status to the poor, warding off poverty related diseases to some extent. Apart from these, the universally available health system provided to

enlightened people multiplied the results of the developmental efforts put in by state and the mass movements.

Kerala's development has three unique characteristics:–

The attainment of a better quality of life as compared to the other poor states in India

A low rate of growth and backwardness of productive sectors

A very high incidence of out-migration and heavy reliance on migrant remittances.

Kerala is known for 'Good health at low cost' model achieved through universal availability, accessibility and performance of government healthcare delivery system to even poorer sections of the society.

In 1985, the Rockefeller Foundation sponsored the 'Good Health at Low Cost' study to explore why certain poor countries with low national incomes managed to achieve acceptable health statistics. More specifically, they asked how China, the state of Kerala in India, Sri Lanka, and Costa Rica attained life expectancies of 65–70 years with GNPs per capita of only US$300– 1,300. Upon completing the study, the authors determined that the increased life expectancies were due to a reduction in child and infant mortality rates (IMR) in the four states and were accompanied by declines in malnutrition and, in some cases, in the incidence of disease. These remarkable improvements in health were attributed to four key factors (Werner, D. and Sanders, D. 1997)[7]:

- political and social commitment to equity (i.e. to meeting all people's basic needs);

education for all, with an emphasis on the primary level;

equitable distribution throughout the urban and rural populations of public health measures and primary health care;

an assurance of adequate caloric intake at all levels of society in a manner that does not replace indigenous agricultural activity.

When we look at the structure and growth as well as spatial distribution of health care services across districts of Kerala, we can see the wide spread of public and private sectors. The state can boast of a good coverage of health services.

Table 3.7

Government Health Care Infrastructure – District-wise, 2000

District	Area*	Population #	Institutions	Beds	Doctors	Nurses	Field staff	Pharmacists
Alappuzha	1414	2.00	90	4,033	249	699	759	145
Ernakulam	2407	2.82	117	4,160	378	678	856	152
Idukki	5,019	1.08	63	840	113	153	650	70
Kannur	2,996	2.25	106	2,763	230	485	870	130
Kasaragod	1,992	1.07	60	739	126	176	497	63
Kollam	2,491	2.41	88	2,078	222	335	885	108
Kottayam	2,203	1.83	85	3,379	242	654	645	102
Kozhikode	2,344	2.62	96	5,745	294	1,335	822	166
Malappuram	3,550	3.10	123	2,183	284	397	1,102	145
Palghat	4,480	2.38	112	2,208	240	504	964	134
Pathanamthitta	2,642	1.19	64	1,072	149	206	563	76
Trivandrum	2,192	2.95	115	7,187	491	1,444	1,061	216
Trichur	3,302	2.74	122	4,264	301	756	979	174
Wayanad	2,131	0.67	40	811	102	165	395	47
STATE	38,863	29.11	1,281	41,462	3,421	8,036	11,046	1728

* - in sq.km

- 1991 population in million

Source: Varatharajan et al, 2002

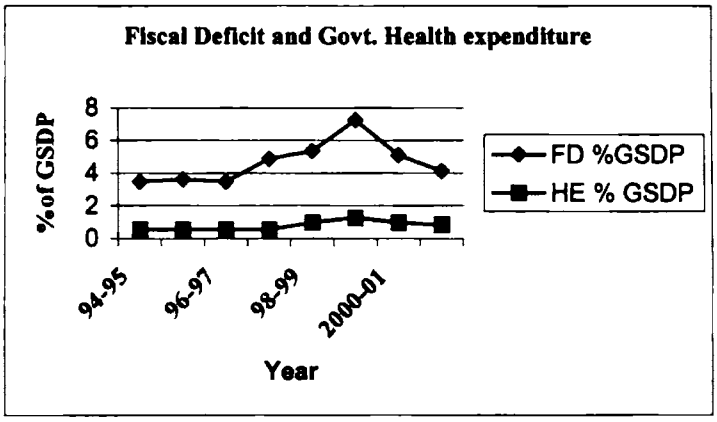
With the given extent of spatial coverage, the state could increase life expectancy from about 48 years in 1951-60 to 73.3 years in 1996-97 and crude death rate in Kerala is 6.4 against 8.7 at the all India level. Advantages apart, there are certain critical gaps in infrastructure, manpower, equipment and drugs that make government health care system unable to meet the rising health care demand. The recent fiscal crisis is partially responsible for this predicament because the government used to meet the demand free at the point of consumption. (Varatharajan et al, 2002)[8]

In Kerala, the fiscal situation has been unsatisfactory since the late 1980s and revenue deficit has become a persistent feature since then. It assumed the proportions of a crisis during the mid-1990s. Kerala's fiscal deficit, public debt and debt servicing have all crossed acceptable limits during 1990s.

Since health is a state subject, state's policies and financial soundness greatly influence the evolution and strength of the health system. Persistent economic stagnation, growing unemployment, and an acute fiscal crisis in Kerala are raising serious doubts about future health prospects and about the sustainability of the Kerala model itself. Nevertheless, fiscal crisis seems to have benefited the health sector. (D.Varatharajan in B.A.Prakash, 2004)[9]

Figure 3.1

Fiscal Deficit and Government Health Expenditure



Government health expenditure has increased whenever fiscal deficit has increased and vice versa. It is seen that if the government's share in health expenditure went up from 1998-99 along with fiscal deficit, it was due to an increase in staff salary following the fifth pay commission awards and not due to the government's benevolence towards the health sector. This argument is strengthened if we analyse the budgetary share of health during the period. It has been declining gradually from 6.95% in 1980-81 to 4.91% in 1997-98.

Table 3.8

Budgetary Share of Health in Kerala

Year	Expenditure (Rs. Crore)			Proportion In the budget (%)
	Revenue	Capital	Total	
1990-91	176.97 (97.7)	4.18 (2.3)	181.15(100.0)	5.88
1991-92	186.90 (97.2)	5.42 (2.8)	192.32(100.0)	5.50
1992-93	283.6 (97.4)	7.47 (2.6)	291.07(100.0)	7.40
1993-94	239.27(96.3)	9.38 (3.7)	248.65(100.0)	5.34
1994-95	285.91 (93.0)	21.66 (7.0)	307.57(100.0)	5.58

95-96	337.56 (94.8)	18.33 (5.2)	355.89(100.0)	5.57
96-97	368.32 (94.1)	23.25 (5.9)	391.57(100.0)	5.28
97-98	419.62 (95.2)	21.38 (4.8)	441.00(100.0)	4.91
98-99	694.86 (95.9)	29.89(4.1)	724.75(100.0)	7.34
99-2000	870.38 (97.3)	24.56(2.7)	894.94(100.0)	7.32
00-01	837.04 (97.8)	18.79(2.2)	855.83(100.0)	6.87
01-02	861.21 (97.0)	26.77(3.0)	887.98(100.0)	7.37
02-03**	923.11 (97.2)	26.67(3.3)	949.78(100.0)	6.60
03-04*	1,137.30 (97.2)	32.51(2.8)	1,169.81(100.0)	7.27

Source: Government of Kerala, 2003
*Budget estimates, ** Revised estimates

A steep increase in the salary component in the revenue expenditure led to a cut back on supplies and maintenance; the cutback was felt heavily by the district and *taluk* hospitals. (Kutty, 1999)[10]. Capital expenditure as a proportion of total government health expenditure also dropped to 3.3% in 2002-03 from 7% in 1994-95; and it was estimated that it might decline further to 2.8% in 2003-04. The share of government health expenditure *per se* has come down from 1.46% of GSDP in 1992-93 to 1.17% in 2001-02. Health's share in total government maintenance expenditure has come down from 1.39% in 1990-91 to 0.78% in1999-2000. Its share in total revenue expenditure came down from 40.12% in 1990-91 to 25.83% in 1999-2000. Hence, an increase in government health expenditure did not lead to the non-salary component.

Even though the salary component of health expenditure rose, it did not result in increased staff strength. Manpower in the government allopathic system declined or remained static during the 1990s while the bed strength grew moderately. The number of beds in government institutions grew from 36,000 to 38,000 (5.8%) during 1986- 96 while the number of private beds grew from 49,000 to 67,500 (37.8%) (Kutty, 1999)[11]. Furthermore, the quality of the public

alth sector decreased because the financial restrictions affected supplies, cluding drugs, more than the salaries of the well-organized and militant ployees.(Kutty,2000)[12] Therefore, the increase in government expenditure iled to improve healthcare access to the people for whom the public health care stem exists. Hence, an increase in budgetary allocation for improving the health re system is a necessity (D.Varatharajan, 2004)[13].

As a result, utilization of government health care units including that of rimary Health care Centers is low and only about 30-40%, from the low-income roup seek medical help from them. The overwhelming reason for its low ilization by people is lack of proper facilities, which in turn, limits the utilization f the existing facilities such as staff as the non-salary component in government alth expenditure is diminishing. In fact, the sub- optimal functioning of the ublic health care system is identified as a major impediment in the process of alth system development in India. Hence, an increase in budgetary allocation to alth is a necessary, but not a sufficient condition for better health care.

The already well-informed population of Kerala shows a very high demand or health care. The high-morbidity low-mortality syndrome (Panicker and Soman 1985)[14] 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 or the health sector.

The unmet health care need is currently serviced by the private sector, sulting in commercialization of health care, high health care costs and denial of rvice to persons unable to pay. Competition from government hospitals often rves as an important factor in determining treatment cost in private hospitals. The unregulated private sector in Kerala opened many hospitals with high-tech quipments, thereby increasing the cost of health care. For example, in 1995, 22

nt of the 26 computerized tomography scan centres in the state were in the rivate sector and even the small remainder in the public sector is decreasing now. Kutty,V.R, 2000)[15]

The introduction of user charges in the public hospitals as part of the eform process increased the out-of pocket expenses of those using public health acilities. Household health expenditure in Kerala has increased over five times 517%) during a 10-year period of 1987–96. This increase was significantly higher 768%) among the poorest people than among the richest (254%). Even after djusting for inflation the increase in health expenditure was about 4 times higher han the increase in consumer price index. (Aravindan KP, Kunhikannan TP, 2000)[16]

The major reasons for this increase in health care costs are the increasing rivatization of health care in the state, the increasing and often unnecessary use of chnology, and a rise in drug prices. For example, Kerala has one of the highest ates of caesarean deliveries in the world now. Caesarean rates were reported to be 22% of all deliveries in rural areas and 34.5% in urban areas. (Thankappan KR, 1999)[17] The extra cost of caesarean deliveries in the state was estimated to be Rs 25 million (US$ 540 000) in the year 2000. Around 75% of the pregnant mothers had at least one ultrasonography test without any notable change in the management or outcome of pregnancy. (Hemachandran K, 2001)[18]

Increase in health care expenditure has been 3 to 4 times for the poor compared to the rich. Poor spend 40% of their income on health care, a 5-fold increase from 1987 to 1996 whereas corresponding figure for rich is a mere 2.4%, close to what they spent in 1987. (Varatharajan et al, 2002)[19] Only around 28% of 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-

perative and other medical institutions.(Kunhikkannan and Aravindan,2000)[20] Their study has established various reasons for choosing private hospitals over public institutions. Of the reasons cited, the most important one is the belief that better care would be available in private hospitals. The other reasons are easy access, availability of medicines, better behaviour of doctors and staff etc. Information regarding this is represented in table 3.9

Table 3.9

Reasons for Preference of Private Hospitals

Adequate care in private hospitals	23
Nearness to private hospitals	15
No medicines in government hospitals	14
Better behaviour from doctors and staff in private hospitals	13
No treatment from government hospitals	10
No doctor in government hospitals	10
Bribery in government hospitals	5
No cleanliness in government hospital	3
Other reasons	7

Source: .(Kunhikkannan and Aravindan,2000) Changes in health status of Kerala 1987-1997, T.P.Kunhikkannan, K.P.Aravindan Discussion paper No.20, June 2000, KRPLLD, CDS, Trivandrum

The low level of utilization of government sponsored health services could be due to the low quality of health care services offered there. The information level of an average Keralite is high when compared to that of the rest of the nation. Lack of political commitment, bureaucratic inefficiency, corruption at various levels, lack of proper planning etc has contributed to this sorry state of affairs. (B.Ekbal, 2000)[21]

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. The social milieu of the state is changing and features of a consumer society are visible in all occupations. This has led to the commercialization and the commodification of health care. Health is no more seen as a right but as a commodity to be purchased by money. The huge remittance of foreign exchange from gulf countries even to the low and middle-income group houses further reinforced this attitude. All these tendencies are leading to a virtual uncontrolled growth of the private medical care facilities in the state. (B.Ekbal, 2000)[22]

Economic circumstances and rising cost of private medical care often force the poor to access government health care services, regardless of their efficiency, perceived quality of care and physical accessibility. "Mediflation" in Kerala is found to be as high as 500-900 per cent while the annual general inflation rate hovers around 5%. Poor allocation to health- especially the non-salary component- has resulted in underutilization of government health care services - there is no up-gradation of quality, no improvement of technology, no increase in the quantity of care rendered (in the form of improvement in the number of beds, doctors, etc). In Kerala only 30-40% of even low-income group seek medical help from the government health care institutions. The unmet health care needs are currently serviced by the private sector resulting in the commercialization of health care. The mismatch between the demand for and the supply of quality health care in the public sector is the major contributing factor towards such high levels of 'mediflation'. This implies high health care costs and denial of service to persons unable to pay. The increase in health care expenditure has been three to four times higher for the poor, who are compelled to spend nearly 40% of their incomes on health care, compared to the rich, who spend only 2.4%.

Only about 15% of rural inpatients and 10% of the urban inpatients receive free treatment in Kerala. As a result, health care has become the second leading cause for indebtedness in Kerala. If Kerala desires to maintain equitable access to health care, especially for the poor, improvement of the government health care system is a must.

Given the above-discussed background, it can be said that Kerala has definitely moved away from the situation of 'Good health at low cost'. Instead, the important aspects of the present health scenario in Kerala are (B.Ekbal,2000)[23]:

The simultaneous presence of the diseases of poverty and the diseases of affluence or life style diseases.

The decay of the public health system.

The uncontrolled growth of the private sector.

Escalation of health care cost.

Marginalisation of poor.

Kerala's health care infrastructure includes 15,339 institutions and 122,922 beds; and 54,210 doctors. There are also 5,094 sub-centres each covering a population of about 4,700. Public sector commands control only over 17.4% of institutions, 40.1% of beds and 13.6% of doctors. More than 82.3% of institutions, 57.7% of beds and 85.7% of doctors are in the private sector and the remaining 0.3% institutions, 2.2% beds and 0.7% doctors are in co-operative sector. The private facilities now outstrip government facilities in the density of beds and employment of personnel. (Department of Statistics and Economics, 1996[24], and KER,1996,1997[25]) This can be seen from the table 3.10.

Table 3.10

Health Care Infrastructure in Kerala, 2000

ector	Number	Per 100,000 population	Beds	Per 100,000 population
lopathic	**5,654(36.9)**	**17.76**	**1,15,792(94.2%)**	**363.68**
ublic sector	1,317(23.3)	4.14	45,684 (39.5)	143.48
HCs	944(71.7)	2.97	5,009(11.0)	15.73
HCs	105(8.0)	0.33	4,202(9.2)	13.20
ospitals	143(10.8)	0.45	31,819(69.7)	99.94
thers	125(9.5)	0.39	4,654(10.2)	14.62
rivate sector	4,288(75.8)	13.47	67,517(58.3)	212.06
o-operative ector	49(0.9)	0.15	2,591(2.2)	8.14
urvedic	**5,719(37.3)**	**17.96**	**5,233(4.3)**	**16.44**
ublic sector	792(13.9)	2.48	2,604(49.8)	8.18
rivate sector	4,922(85.0)	15.46	2,595(49.6)	8.15
o-operative ector	5(0.1)	0.02	34(0.6)	0.11
omoeopathy	**3,676(24.0)**	**11.55**	**1,479(1.2)**	**4.65**
ublic sector	555(15.1)	1.74	970(65.6)	3.05
rivate sector	3,118(84.8)	9.80	394(26.6)	1.24
o-operative ector	3(0.1)	0.01	115(0.08)	0.36
thers	**290(1.8)**	**0.91**	**418(100)**	**1.31**
rivate sector	290(100)	0.91	418(100)	1.31
tate total	**15,339(100)**	**48.18**	**1,22,922(100)**	**386.08**

ource:Varatharajan et al

One government allopathic institution in the state covers about 30 sq.km. n the average whereas there exists one bed for every sq.km. 70% of the population has access to a hospital within 5km of their residence. In fact, 36% of he total rural population has at least one hospital within 2km. Only 3% had to go nore than 10 km to get a hospital facility.

In common with the rest of India, the private for profit health sector dominates the provision of health services in the state. Although the private sector health care is typically suited to higher income groups, its use even by the poor is significant. The sector is quite diverse and accommodates large hospitals, smaller nursing homes, clinics of private doctors, unqualified alternative medical practitioner, private practice by auxiliary nurses and traditional birth attendants. The health facilities available in the districts of Kerala are presented in table 3.11. It can be understood that the size and spread of the private sector is far superior to the public sector.

Table 3.11

Health Facilities Available in the Districts of Kerala

District	Institution	Beds	Doctors	Nurses	Pharmacist
Trivandrum	431	4807	1181	1178	164
Kollam	369	7194	834	1203	182
Pathanamthitta	257	4391	642	780	142
Alappuzha	367	3633	650	793	140
Kottayam	474	7642	1041	1290	240
Idukki	239	3944	380	552	133
Ernakulam	542	11418	1768	2285	348
Trichur	288	8345	984	1139	184
Palghat	180	2105	494	471	65
Malappuram	237	3313	543	597	112
Kozhikode	372	3714	802	648	145
Wayanad	111	1769	204	206	57
Kannur	264	3952	581	653	103
Kasaragod	157	1290	282	295	46
State	4288	67517	10388	12090	2061

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

One private allopathic institution in the state covers about 9.06 sq.km. on the average whereas there exists 1.7 bed for every sq.km. As far as the health care infrastructure is considered, the coverage of private medical institutions is much more wider than that of public facilities. The picture becomes clear from the following table:

Table 3.12

Comparison of Strength of Doctors and Number of Beds (Public vs. private) 1986, 1995

Type of institution	Number of doctors		Number of beds	
	1986	1995	1986	1995
Public		3284		42126
Private	6345	10388	49030	67517

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

Table 3.13 summarises the health care infrastructure as offered by the private and government institutions. The data of the year 1995 is compared, as authentic data of private medical institutions of the state after the year 1995 is not available.

Table 3.13

Health Care Infrastructure – District-wise Public vs. Private

District	Institution		Beds		Doctors		Nurses		Pharmacist	
	Govt	Pvt	Govt	Pvt	Govt	Pvt	Govt	Pvt	Govt	Pvt
Trivandrum		431		4807		1181		1178		164
Ernakulam		369		7194		834		1203		182
Pathanamthitta		257		4391		642		780		142
Alappuzha		367		3633		650		793		140
Wayanad		474		7642		1041		1290		240

		239		3944		380		552		133
		542		11418		1768		2285		348
		288		8345		984		1139		184
		180		2105		494		471		65
		237		3313		543		597		112
		372		3714		802		648		145
		111		1769		204		206		57
		264		3952		581		653		103
		157		1290		282		295		46
		4288		67517		10388		12090		2061

Source: Compiled from the *Kerala Economic review, 1997,* State planning board and *Report on Private Medical Institutions in Kerala*, Dept. of economics and statistics, 1996.

Reduction of Infant mortality rate is an important goal of the National Health Policy of 2002. This becomes all the more important given the fact that infant mortality has a bearing on the antenatal services available to the mother. Inter-state differentials in IMRs and crude death rates are substantial. Kerala had an IMR of only 22 during 1988-90, less than one-fifth the rate in Uttar Pradesh (113), Madhya Pradesh (116), and Orissa (122). Factors contributing to these spatial differentials are many; but the high proportion of babies being delivered under the care of trained health personnel in maretnity homes, primary health centers or dispensaries in Kerala has been an important factor.

Both public and private medical facilities together meet minimum standards for delivering basic Emergency Obstetric Care (EmOC). Private facilities in general score more highly in terms cleanliness and customer relations but often fail to maintain basic records or maintain stocks of blood. With the exception of large private hospitals, which are attempting to develop internal quality systems that meet international standards, most private facilities fail to routinely document

monitor the quality of their processes. (Tim Ensor and Rita Dey, 2003)[26]. cording to the study, costs of delivery services in private nursing homes and spitals are around 70 percent higher than in public facilities. This is a significant ference although also indicates that 'free' public facilities are not that free. ny families run into debt by meeting the cost of health care services.

e real picture of provision of health services

In most settings, a "public" health service system refers to a service longing to a state. "Private" refers to health care delivered by individuals and/ or stitutions not administered by the state. Such a distinction based on the type of wnership is not adequate because it takes for granted the nature of this identity d automatically determines the nature of services delivered to the population. he practice by government doctors, which, can be called 'private in public', sists in the state.

In addition, given the large number of private and public facilities in Kerala, the question of provision need not necessarily be posed as public vs. private. It should be public vs. private in public vs. private.

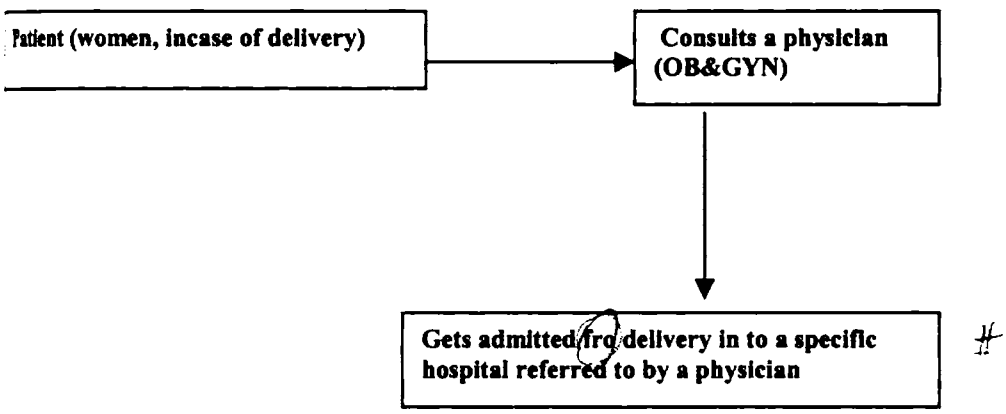
The private services rendered by public sector physicians involve extra costs to the users. "Cost" and "quality" of services rendered by these different categories thus become important questions. Besides, there arises the question of survival and success. For providers, excess supply in any market situation would lead to glut and strategies to survive in the market become imperative. In case of doctors, the major strategy is product differentiation presented in the form of :

(i) specialization (ii) spreading the geographical area of practice and
(iii) increasing the number of hours of service per day. (Deepa Sankar, 2000)[27].

In most of the cases, the doctor/ specialist utilizes the infrastructure provided within the hospital building. The physician is a visiting consultant. There are three different parties involved in the payment process: patient, physician, and hospital. (Muraleedharan, 1999)[28]

It is well known that most payments for outpatient and inpatient care in India are made out of pocket. Very few are paid by either employers or private/public insurance companies. But there is literally no account of the nature of transactions that take place between the three parties involved. Typically, the flow of transactions for a delivery case takes place as follows: a woman consults an OB&GYN specialist for antenatal care, and is referred to a hospital. Generally, after considering the cost of care and the patient's economic status, the OB&GYN refers the patient a hospital where he/she is a VC. These deliveries are called "referred cases." (If a doctor consults a delivery case not referred by himself/herself but at the request of the hospital, it is called a "hospital case").

Diagrammatically this is shown below.



Source: (Muraleedharan, 1999)

There is an unwritten agreement between the doctors and patients whereby, the hospitals (where the doctors are VCs), expect them to refer all the cases that

ome to them to that particular hospital. Consultation fee is collected by the ospital for the doctor. A registration fee is collected by the hospital from each atient. Both these fees are collected once in a month usually. Patients also pay the ospital directly for other services such as laboratory, nursing, and canteen harges. Another transaction takes place between VCs and hospitals. The VCs enerally pay a fixed rent for the space and other infrastructural facilities provided y the hospitals.

The effect of this situation on the common man can be analysed more ffectively against the backdrop of technological evolution in modern medicine. his has resulted in the over medicalisation of health care. It is seen that echnologies 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 edical care.

This, along with the 'phenomenon' of "self-referrals", leads to overuse of ervices and excessive cost. This implies high health care costs and denial of ervice to persons unable to pay. The increase in health care expenditure has been hree to four times higher for the poor, who are compelled to spend nearly 40% of heir incomes on health care, compared to the rich, who spend only 2.4%.

Regulatory environment in health sector

It was only recently that the state government took some initiative to formally register the private sector health care institutions in the state. Even as early as 1995, half of the state's Private Medical Institutions (PMIs)were functioning without any formal registration. This is evident from the recent survey conducted by the government on PMIs. Table 3.14 shows the number of registered and unregistered PMIs in Kerala in 1995. The private non-profit health care

institutions run by the missionaries and trusts get registered under the Charitable Societies Act. Those operating under the provision of Co-operative societies act are registered as co-operative medical institutions and those which need to be registered for legal convenience for other purposes (eg., for validating the needs to purchase/ import equipments it is good to have a registration) get registration under regular category of institutions.

Table 3.14

PMIs According to Registration /Approval

Registration	Allopathic	Ayurvedic	Homoeopathic	Other	Total
Total medical institutions	4288	4922	3118	290	2618
Total unregistered	45.45	54.27	60.3	60	52.89
Total registered	54.55	45.73	39.7	40	47.11
Registered General	82.68	96.49	95.64	93.97	90.83
Charitable Societies act	16.25	3.2	3.8	6.03	8.51
Co-operative	1.07	0.31	0.57	0	0.66

Source: Govt. of Kerala, 1996, Kerala Economic Review, State Planning Board.

Unless and until the registration of hospitals take place, they remain outside the so-called 'formal' list of hospitals and hence, outside the clutches of the law. As important as management of registration of PMIs is the problem of regulation/ guaranteeing of minimum facilities in the hospitals. It is seen that the hospitals, whether private or public, are not at all particular about this aspect. There has to be stipulations regarding the space of rooms, ventilation, sanitation, availability of

functional medical equipments and personnel for various categories of hospitals. The regulations as well as the maintenance of minimum standards of care are important from the customers' perspective. An effective act, which will bind all the hospitals in such norms, is the need of the hour.

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Chapter IV

Relevance of Maternal Health and Obstetric Care

Maternal and Child Health – The Indispensable Component

From the time period, when a systematic, collective, and conscious effort to the health of the public had been conceived, many programmes and policies were devised and implemented. With the increasing recognition of the failure of existing health services to provide health care, alternative ideas and methods to provide health care have been considered and tried. These efforts called for a revolutionary approach to health care and ultimately led to the Alma-Ata declaration in 1978. It declared that the 'the existing gross inequality in the health status of the people particularly between developed and developing countries as well as within countries is politically, socially and economically unacceptable'. The Alma –Ata declaration called for the acceptance of WHO goal of Health For All by the year 2000 AD and proclaimed Primary Health Care as the way to achieving the goal.

India is also a party to that declaration. The major change that was required in the health policy so far followed in the country was the shift of focus from curative to preventive services. The structure prescribed for the delivery of services by Alma –Ata was already followed in the country as per the recommendations of the Bhore Committee (1946)[1].

For delivery of comprehensive health care to all the people, special weightage has to be given to delivering health care to the weaker and vulnerable section of the community; which is definitely women and children. One of the components of Primary Health Care is maternal and child health care, including family planning.

No issue is more central to global well-being than maternal and perinatal health[a]. Every individual, every family and every community is at some point intimately involved in pregnancy and the success of childbirth. Yet every day, 1600 women and over 10000 newborns die due to complications that could have been prevented. (WHO, 2001)[2]

Every year, almost 600,000 women in the world die from pregnancy-related complications, and many more suffer from long-term disability, such as chronic pain, fistula, impaired mobility, damage to the reproductive system, and infertility. Twenty-three million women (15% of all pregnant women) develop life-threatening complications every year. The problem is most acute in developing countries, where complications of pregnancy and childbirth are the leading causes of disability and death among women of reproductive age.

Over the past several decades, maternal health programs have used antenatal screening to try to identify women at risk for complications. Though beneficial in many ways, these efforts have not succeeded in lowering maternal mortality rates. Studies show that most women who develop complications do not have any known risk factors. Indeed, even when a woman is in good health and receives antenatal care, there is no way to know whether she will develop complications and require emergency services. As a result, high-quality EmOC (Emergency Obstetric Care) needs to be available to every pregnant woman, and a health professional, can save lives by proper vigilance and responsiveness to life-threatening complications.

The maternal health community has identified three types of delays that can affect a woman's chances of surviving an obstetric emergency. The first relates to social factors such as - delay in deciding to seek care when danger

[a] Perinatal health - Health of the foetus, which has completed 22 weeks of development and up till seven days after birth.

signs appear, and delay in reaching a health facility, and the second relates to lack of resources, poor infrastructure, dearth of appropriate facilities, women's low status, family decision-making about childbirth - that occur outside the facility and sometimes result in emergencies that are beyond medical help. The third type of delay is those delays occurring once a woman reaches the hospital- is often under the provider's control.

Although many health systems in developing countries cannot support providers as adequately as desirable, there are still opportunities to do better with what resources are on hand. 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

Given the general scarcity of financial resources, the public sector needs to determine its priorities carefully. According to the widely accepted policy, the health care needs of infants, children and pregnant women, which account for a high proportion of all deaths (and presumably also of illness) deserve urgent attention.

In the context of adopting human development as the ultimate goal of all our developmental efforts, empowerment of women and development of children gain priority on the country's development agenda. Women and Children together constitute 65.6 per cent of India's total population and account for 673.80 million (as projected) in 2001.

Women, as an independent target group, account for 495.74 million and represent 48.3 per cent of country's total population, as per the 2001 Census. The National Health Policy 2001 (Draft) promises to ensure increased access to women to basic health care and commits the highest priority to the funding

of the identified programmes relating to women's health. During the Ninth Plan period, several new initiatives were taken as part of the Reproductive and Child Health (RCH) Programme (1997), in order to make it broad-based and client friendly. All the interventions with respect to the erstwhile programme of Child Survival and Safe Motherhood (CSSM) became part of RCH. During this period, the focus shifted from the individualized vertical interventions to a more holistic integrated life-cycle approach with more attention to reproductive health care. This includes access to essential obstetric care during the entire period of pregnancy, provision of emergency obstetric care as close to the community as possible, improving and expanding early and safe abortion services and provision for treatment of Reproductive Tract Infections/Sexually Transmitted Infections (RTI/STI) cases at the sub-district level.

Maternal Health

Maternal mortality and morbidity remains a major health problem in India. Estimating the maternal mortality ratio is never a precise exercise and estimates suggest the rate is between 407 and 540 per 100,000 live births. The latter estimate was recorded in the most recent DHS (Ensor, Tim and Dey, Rita, 2003)[3]. The rate is considerably higher in rural areas.

The NFHS found that, based on a standard of living index used in the NFHS, institutional delivery accounted for 29 percent of total deliveries amongst the low standard of living group but more than 84 percent in the high group (IIPS/Measure_DHS+, 2000)[4]. Assistance at delivery, obtaining antenatal care and post-partum checks for non-institutional deliveries exhibit similar trends

A major part 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. Rural use of

private services is lower than for urban areas - a combined effect of lower incomes and availability of services. Table 3.1 gives and idea gives an idea about the utilization of reproductive health services by the type of provider in a rural – urban context.

Table 4.1

Utilisation of Reproductive Health Services by Type of Provider

Type of hospital	Urban	Rural	Total
Public	**12**	**10**	**10.5**
Govt. doctor	10.2	6.7	7.5
Other public	1.8	3.3	3
Private	**35.6**	**24.1**	**26.9**
Private doctor/nurse	32.3	20.4	23.4
Other private	3.3	3.7	3.5
NGO worker	**0.2**	**0.1**	**0.1**
None	**55.3**	**68.8**	**65.5**

Source: (International Institute for Population Sciences, 2000)

The for-profit private maternity care sector is dominated by clinical services rendered around the time of pregnancy. The private sector accounts for around 47% of institutional deliveries and 40% of antenatal care (Peters, Yazbeck et al., 2002)[5]. Much of this provision is from unqualified practitioners: dais and other indigenous practitioners make up 36%, private doctors 21% and chemists and other providers 14%. Recent surveys of the quality of obstetric care in two districts of AP found that the majority (65 percent) of private rural clinics had the capability to provide emergency obstetric care (Sridhar, 2001a[6]; Sridhar, 2001b[7]).

The sector also provides majority of terminations. In Rajastan, for example, the nongovernment sector accounts for more than 70 percent of all abortions (Chhabra and Nuna, 1993)[8]. The private sector, as might be expected, is far less active in areas of education and extending reproductive choice where the public and NGO sector is dominant.

At least 80% of consultations by young married women are with private providers, 26% of these episodes are for reproductive illnesses. Evidence from exit interviews indicate that maternity care is the main reason (28 percent) for obtaining services from small and second most likely reason (24 percent, after general medicine) in medium size hospitals. (Mahapatra, P., P. Sridhar and K. T. Rajshree 2002)[9]

Use of private sector for delivery also varies markedly by standard of living with 17 percent of the poorest and more than 70 percent of the richest group using this type of facility (IIPS/Measure_DHS+, 2000)[10]. The dominant reasons for use of private reproductive health services appear to be related to convenience, quality and availability of female staff. A study in AP found that the main reason for obtaining private obstetric service was the fact that a lady doctor was available (61% of respondents), availability of any doctor (49%), availability of emergency services (42%) and good facilities (45%) (George, 1998). Conversely, the things patients most disliked about the private services were that the fee was high (15%) and attitude of nurses' poor (9%).

Like public sector, private sector can be divided into tiers of care ranging from small private nursing homes, some with fewer than 10 beds, to medium sized hospitals with 50 to 100 beds up to large facilities with several hundred beds. The latter often provide tertiary services. Most maternity services are provided locally in small and medium sized facilities.

Where women require more specialist services, for example special care for low birth weight babies, or premature babies, they appear to almost always turn to tertiary public facilities even when the birth is conducted at a private facility. In Kerala, even this is not found happening- new borns with severe problems are found being referred by the public hospitals to private hospitals with ultra modern facilities. Maternity services are a very small proportion of the total service that such hospitals provide.

Cost of Maternity Services

Across India there is evidence that all social groups are willing to spend considerable sums of money on maternity care, A study conducted in Ahmedabad found that even the poor in slums spent at least INR 500, for a normal delivery (Chavda, 1998)[11]. This was more than 25% of the average per capita monthly income and much more for poorer groups.

In Andhra Pradesh a study conducted in 1993 and 1994 across three districts of 357 facilities, which included 244 private hospitals and clinics, found a wide range of prices for both a normal delivery and a caesarean section - 60 fold in the case of a normal delivery and 48 fold in the case of a caesarean section (Table 4.2). (Mahapatra, Sridhar, Rajshree, 2002)[12] This appears to reflect both a large difference in the quality of hotel services offered, quality and experience of medical practitioners and also the purchasing power of the areas in which the facility is situated. The study only enquired about official prices in public facilities and, not surprisingly since maternity should be a free service, no charges were reported.

Table 4.2
Mean Private Charges for Delivery Services in Rupees, 1993/94 (range in brackets)

Hospital type	Normal delivery	Caesarean section
Clinics	465 (100-1,000)	2,310 (250-4,000)
Small hospitals	1,060 (150-6,000)	3,676 (500-8,000)
Large hospitals	1,843 (300-6,000)	3,708 (250-12,000)
All	1,053 (100-6,000)	3,574 (250-12,000)

Source : Mahapatra, P., P. Sridhar and K. T. Rajshree (2002)

Relevance of Taking Obstetric Care as the Focus

Maternal mortality claims 514,000 women's lives each year. Nearly all these lives could be saved if affordable, good quality obstetric care were available 24 hours a day, seven days a week. Most of the deaths are caused by hemorrhage, obstructed labour, infection (sepsis), unsafe abortion and eclampsia (pregnancy induced hypertension). Indirect causes like malaria, HIV and anaemia also contribute to maternal deaths.

For every woman who dies, an estimated 15 to 30 women suffer chronic illnesses or injuries as a result of their pregnancies. Obstetric fistula is a serious and isolating injury that could be significantly be prevented through proper/ emergency obstetric care.

Statistics show that about 15% of all pregnancies result in complications. Most complications occur randomly across all pregnancies, both high and low-risk. They cannot be accurately predicted and most often cannot be prevented, but they can be treated.

It is essential that for a facility to meet these standards, all six or eight of the following functions must be performed regularly and assessed every three to six months. (Engender Health, 2002)[13]

Basic EmOC functions

(Preformed in health center without the need for an operating theatre)

1. IV/IM antibiotics
2. IV/IM oxytoxics
3. IV/IM anticonvulsants
4. Manual removal of placenta
5. Assisted vaginal delivery
6. Removal of retained products

Comprehensive EmOC functions

(Requires an operating theatre and is usually performed in referral units in the case of public services).

It includes all six basic EmOC facilities plus:

7. Caesarean section
8. Blood transfusion

A Basic EOC facility is one that is performing **all six** of the functions listed above. This does not mean that other functions are not important. But for the purposes of monitoring, these six functions are considered sufficient to identify the kind of facility that can perform most, but not all, EOC activities. At a Comprehensive EOC facility, the ability to perform surgery entails a number of other capabilities, e.g., administering anaesthesia.

A reasonable (even conservative) estimate of the minimum proportion of pregnant women who will require a Caesarean section is 5 per cent. As already discussed, a number of authors have estimated the proportion of pregnant women who develop serious complications to be at least 15 per cent Since it is assumed that about 15 per cent of pregnant women will develop serious complications, then we can estimate that one third (5/15 = .33) of

women with complications will require treatment in a Comprehensive EOC facility.

Theoretically, all women who need Basic EOC could be treated in a single facility. This kind of arrangement, however, would ignore problems of access. Even in a city, one facility may not be easily accessible to everyone. The minimum acceptable level for this indicator has been defined in relation to population rather than births because most health planning is done in relation to population. However, if it is judged more appropriate to assess the adequacy of EOC services in relation to births, the comparable minimum acceptable level would be one Comprehensive EOC facility and four Basic EOC facilities for every 20,000 annual births.

The goals of a provider of emergency obstetric care (EmOC) are to save the lives of women and their babies and to prevent injury to them. Quality EmOC involves a state of ***readiness*** that will enable the provider's team to ***respond*** appropriately to obstetric emergencies in a way that fulfills the needs and ***rights*** of clients.

Readiness: Achieving and maintaining a state of preparedness in the facility to provide quality EmOC. This includes staff available with requisite skills and a willingness to respond to clients 24 hours a day, 7 days a week, and available and functional equipment and supplies.

Response: Providing prompt, appropriate care when emergencies arise, according to accepted clinical standards and protocols.

Rights: Providing services in a manner corresponding to the rights and needs of all clients.

Clients have the right to quality care, and staff have specific needs to be met so they are able to provide this care. Specifically, they need *facilitative*

supervision and reliable management for a positive work environment; *information, training, and development* to maintain skill levels; and functional and adequate *supplies, equipment, and infrastructure* to provide correct and complete treatment.

If, in the aggregate, there are not four Basic and one Comprehensive EOC facilities per 500,000 population, the overall minimum acceptable level of EOC services is not met for the country. In this case, a high priority is to bring the amount of EOC services at least up to the minimum acceptable level. This may be done in different ways — i.e., by upgrading existing facilities, building new facilities or some combination of the two. If the minimum acceptable level for the indicator of all births in Basic and Comprehensive EOC facilities is not met — i.e., fewer than 15 per cent of all births in the population take place in EOC facilities — one can conclude with reasonable certainty that some women who need life-saving EOC services are not receiving them. In this case, the reasons for underutilization need to be explored and addressed. Of course, in seeking to increase utilization, the emphasis should be on encouraging women with complications to use EOC facilities, and not simply on increasing the number of normal deliveries taking place in facilities. As discussed in earlier chapters, the goal is to have 100 per cent of women with obstetric complications delivering in EOC facilities, not 100 per cent of all pregnant women.

Meeting the minimum criteria as mentioned above is the fundamental duty of the government and enjoying the care is the right of every woman. Just the establishment of infrastructure, is, probably not the answer. The clients have to be educated on the necessity of utilization of such services. Only a well-informed client can assure that whatever infrastructure is provided, is utilized without under- consumption.

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Chapter V

Analysis And Interpretation

The health scenario in Kerala is characterized by over medicalisation solely encouraged by the magical growth of private hospital sector in the state. This has led to the escalation of cost of treatment of diseases. General utilization pattern of hospitals shows that only around 28.5% of the sick use public health facilities as against 58.01% going in for private medical care. (Kunhikkannan and Aravindan,2000)[1] A similar trend is reflected in the case of utilization of obstetric care in the state. More than 58% of the obstetric cases take place in private institutions while around 39% of the deliveries take place in public health care facilities.

The study of comparison of efficiencies of private and public hospitals in Ernakulam district was undertaken in this context. Data was collected from selected samples of private and public hospitals using questionnaires. (Details have been discussed in Chapter Two)

Data collected from the hospitals in the district was analysed using Data Envelopment Analysis. DEA is now being used extensively in health literature to study technical inefficiency. This is a LP-based technique for measuring relative performance of organizational units, sometimes referred to as decision-making units (DMU's). DEA is an increasingly popular and practical management tool and is used to identify the 'best' performer or practice (benchmarking).

Data envelopment analysis (DEA) was first introduced in the literature in 1978 (Charnes *et al.* 1978)[2]. It is an empirically based methodology that eliminates the need for some of the assumptions and limitations of traditional efficiency measurement approaches. It was originally intended for use as a performance measurement tool for organizations that lacked a profit

motivation, e.g., not-for-profit and governmental organizations. However, since its introduction, it has been developed and expanded for a variety of uses in for-profit as well as not-for-profit situations.

Data Envelopment Analysis

The study uses Data envelopment analysis (DEA) approach to analyse the data. Lovell (1993)[3] ,cites the argument made by Pestieau and Tulkens (1990)[4] 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 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 and public. This is where the use of data envelopment analysis became imperative. The other reason for using DEA as an analysis tool was the flexibility of DEA in handling multiple input and output measures, which was 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)[5] Under standing 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 (one) for the efficient hospital to a score of less than one (above zero) for the inefficient hospital. Having calculated the efficiency score, the explanatory variables were regressed on the efficiency score, by means of truncated regression model. The truncated regression model indicates a relationship between the efficiency score and influencing factors.

Data and variables

For the purpose of analysis, several variables were identified and defined. The variables were of three types: input, output and explanatory variables. Variables and their definitions are given in the

The measurement of the variables is done according to the method devised in 'Health Facility Survey - Gujarat 2000 Grant-In-Aid Institutions In Gujarat State' by IIM, Ahemedabad. (Bhat, Verma, Reuben, 2001)[6] The measures adapted in the study were for the comparison of hospitals in Gujarat in general. They had to be adapted to suit this study, which focused in the obstetric care department of hospitals.

An index is devised to measure in dichotomous terms (0 for non-availability and 1 for availability) the presence or absence of the different health care services provided (or equipments) out of a standard list of services (or equipments), where each service (or equipment) in the list of standard services (or equipments) carries equal weightage. The summation of dichotomous data for every hospital is then reduced to a decimal

representation (the index) between 0 and 1, representing the ratio of the number of services (or equipments) provided by a particular hospital to total number of standard health care services (or equipments) that were required to be provided or available.

Input variables

The variables are broadly classified in to capital, labour and technological input. Eleven input variables were defined to measure input variable, common to all hospitals. The level of aggregation or disaggregation of each head (staff, capital or technology) depended on the information available. The break up of total staff strength in terms of the number of doctors, number of nurses, etc., were available, the input variable of total staff strength, under the head of 'staff input' was disaggregated as per information available in to number of gynaecologists, nurses, paramedical staff and administrative staff.

The essential infrastructure like OPD, consultation room, normal delivery room, theatre etc. are measured by creating an index to assess the presence and absence of the standard items of infrastructure (the list included in the questionnaire was arrived at in consultation with the technical personnel and the pilot study). Similarly, the index for basic instruments and facilities like scanning machine, stethoscope, spatula, etc., is created by adding the numbers of functional instruments available in the hospital. The assumption underlying this index is that all hospitals included in this study are homogenous in infrastructure and technological standard as they operate at the same level (only the hospitals with obstetric care department giving basic obstetric care and emergency obstetric care are only considered).

Two measures of capital input are available, a measure based on number of beds per hospital and the expenditure on the maintenance of equipments, machinery, vehicles, infrastructure etc. to measure the quantity of

capital investment. In order to measure the quality of service, investment on essential drugs is used. Beds are often used to proxy for capital stock in hospital studies usually because a reliable measure of the value of assets is not usually available.

Staff inputs were measured by total time devoted for attending the patients. The staff involvement is measured by the number of hours devoted to the OP and IP departments and laborotary facilities. The disaggregated measure of staff is derived by using the number of staff days of each type deployed. This measure included gynaecologists, nurses, non-technical staff etc. For this analysis, variables representing the inputs of doctors, nursing staff, infrastructure, equipment and non-technical staff are considered.

Output variables

Hospitals providing obstetric care provide two major services: Out Patient services and In-patient services, i.e., deliveries (normal or caesarean). Given this homogeneity in types of services provided, the number of cases treated/handled under each category was chosen as a representative measure of the three output variables.

Selection of variables

Once the various measures (or variables) and the measurement scales for input and output were derived from the data, the next step involved was identifying the relevant input and output variables, which contribute towards explaining the right input and output measures of the hospital. To identify these relevant variables, a series of stepwise regressions were performed to identify the relation between these variables. The input variables, for which the co-efficient of regression (when regressed with any of the output measures) turned out to be not significant after a regression, were excluded from the final model. This resulted in the elimination of input variable of administrative staff and the drugs/maintenance expenditure.

The explanatory variables consist of two types of variables: quantitative and qualitative. The quantitative variables are explained first.

Obstetric care services are measured through the variables- bed occupancy ratio, nurses' availability ratio, non –technical staff availability ratio, doctor availability ratio, physical infrastructure index and total number of equipments.

In order to measure the quality of services, staff intensity index was created by measuring the number of staff availability per in-patient.

The model was run using various input output combinations.

Analysis and results

A DEA model was run after feeding the input and output variables in to the programme. The hospitals were clustered in to two types: Government hospitals and private medical institutions and fed in to the model for analysis of technical efficiency. The DEA programme used for analysis uses the methods based on the work of Fare, Grosskopf (1997)[7], and Lovell(1993)[8].

As the hospital caters to a similar kind of population and operates at the same level, only CRS model was employed. Since no information was available on the cost of inputs, cost efficiency measures were not employed. DEA was performed with "input orientation". "Input orientation" was used, as the requirements were to identify the inefficiencies in the usage of various input resources of the hospitals under study.

The technical efficiency for the two type of hospitals are given in table 5.1:

Table 5.1

Summary of Efficiency

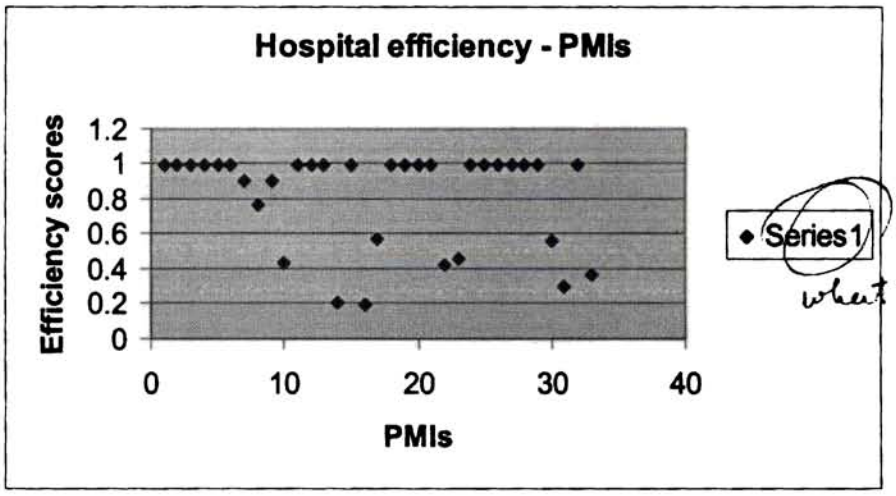
H_type	Mean	Std deviation	Coefft of variation	Minimum	Maximum	Variance	Kurtosis	Skewness	%of hspital with effcy 1
Private	0.8197	0.28080	34.26	0.19	1.00	0.079	-0.193	-1.199	63.6
Govt.	0.6648	0.41939	63.09	0.17	1.00	0.176	-2.717	-0.398	57.1
Total	0.7926	0.30872	38.95	0.17	1.00	0.095	-0.661	-1.043	62.5

The hypothesis is rejected as private hospitals were found to be more efficient than public hospitals.

The efficiency score of 0.8197 (approximately 0.82) for the private hospital indicates on an average that the hospitals could increase the output using the same level of resources or reduce the input usage or input costs by 18% to deliver the same amount of health care. Only 63.6% of the hospitals are able to efficiently utilize their resources. In the case of government hospitals, mean efficiency score is 0.6648 (approximately 0.66), which means that such hospitals could increase the output using the same level of resources or reduce the input usage or input costs by 24% to deliver the same amount of health care. More than 57% of the hospitals are found to have efficiency score of one. When one looks at the coefficient of variation as a measure of consistency of services provided, it can be understood that the efficiency scores of public hospitals are more dispersed than those of private hospitals. (Figures 5.1,5.2)

Why SD low for pvt hospitals! Does this mean all efficiency does not vary much across small, med and large hospitals?
While it matters much in case of govt. hospital
You may comment.

Fig 5.1

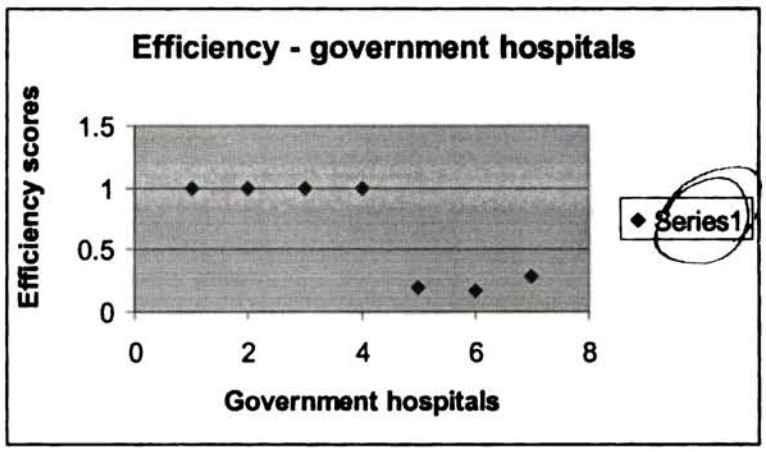


Technical efficiency scores only refer to relative performance within the sample. Hospitals given an efficiency score of one are efficient relative to all the other hospitals in the sample, but may not be efficient by some absolute or world standard necessarily. The plot for individual technical efficiency scores of PMIs is plotted in Fig 5.1. More than 63 percent (63.6%) of PMI were found having efficiency score of 1.

Around 70 percent (69.7%) i.e., 23 hospitals were found to be having efficiency score above 80%. Seven hospitals were showing efficiency below 0.5%, they were found to be hospitals outside the city - in the not-so urbanized areas. This may be interpreted to indicate with fewer medium/large hospital in the not-so urbanized areas, and a resulting higher market concentration geographical markets become less competitive, which, in turn, makes the hospital staff less productive and less sensitive to the efficient allocation of resources. Alternatively, an excess capacity of hospitals in small cities may significantly result in a low occupancy rate, which would be followed by low productivity and low profitability. Probably, this phenomenon has come in t

action in the case of Ernakulam district, where, nearly 18.5%of hospitals have closed down in the city suburbs after 1997.

Fig 5.2



The plot for individual technical efficiency scores of government hospitals has been plotted in Fig 5.2. Slightly over 57 percent (57.1%) of government hospitals have efficiency score of 1. There is a wide difference between the best performing hospitals and the inefficient hospitals. The efficiency score of the inefficient hospitals is well below 0.3. These hospitals are those hospitals in the not-so urbanized areas. Efficiency score 1 was obtained by those government hospitals in the city and its immediate vicinity and the hospital reserved for maternity care.

Institutional Contributors of Inefficiency

In the second stage, having calculated the efficiency score, the explanatory variables were regressed on the efficiency score, by means of truncated regression model. The truncated regression model indicates a relationship between the efficiency score and influencing factors.

Table 5.2

Regression Scores - Private Medical Institutions

Model		Unstandardized Coefficients		t	Sig.
		Coeffficient	Std. Error		
1	(Constant)	-.118	.178	-.663	.513
	Bed occupancy ratio	-.417	.403	-1.036	.310
	Nurses availability ratio	.386	.143	2.703	.012
	Non technical ratio	-1.512E-02	.067	-.226	.823
	Doctor availability ratio	-.197	.053	-3.695	.001
	Phy ratio	-.221	.144	-1.531	.138
	Eqtotal	.375	.257	1.459	.157

F=2.653	P=.038

R = .616

The model is significant at 5% significance level.

Nurses' availability ratio has a positive effect on the probability that a private medical institution is efficient. A 10% increase in number of nurse days available, given the number of in-patients, will lead to an increase in the probability of efficiency by 3.86%. It can be perceived that the number of nurse days available (perceived as number of nurses available for service by the customer) has a strong bearing on the concept of amenities available to the customer. In the case of maternal care, the service of nurses become crucially important since the services of an experienced person is highly essential for both the mother and the newborn. Certainty of skilled attention positively influences the choice of the provider.

Doctors' availability ratio and physical infrastructure ratio - both are having negative influences on efficiency. This could be interpreted in two

ways. First, economies of scale might exist in the case of availability of doctors, which means average productivity of doctors' increases as hospital size (and thus the number of patients) increase. Second, excessive numbers of doctors can be a proxy variable of poor skills in hospital management, which results in inefficiency. Another interpretation could be that, a particular doctor might be a consultant in different hospitals. The profit he gets as a result of the business dealings with different hospitals will also be different. Hence, he might feel inclined to refer more patients for delivery to the hospital/s where he is getting higher share. This might result in the doctor's negative contribution to efficiency.

In the case of physical infrastructure index also, these interpretations would hold good – either that it is because of the action of economies of scale or it is so because of large number of under utilized infrastructure, which is a proxy of poor skills in hospital management. It could also be due to the fact that, once the availability of essential equipments (that is right from a scanning machine to a cardio-tocographic monitor) is guaranteed under one roof, the availability of services of a doctor assumes a secondary position.

The explanatory variable of equipment index is found to have a positive effect on the efficiency of hospitals. As interpreted earlier, a 10% increase in the equipment number would lead to a 3.75% increase in the efficiency of hospitals.

The bed occupancy ratio has a strong negative effect on the efficiency score. It can be due to the fact that economies of scale might exist in the utilization of beds, which means average productivity of bed size increases as hospital size (and naturally, the number of patients) increases. As private hospitals have a large number of beds, for which there is under utilization, the average productivity per bed days tend to be low. For example, in a large and modern hospital, for a caesarean operation, the gut used for stitch could be of

hat kind which is absorbed by the body. In a hospital of a much smaller size r in a hospital where the modern techniques cannot be afforded, the stitches might require manual removal, which might require a longer period of stay, adding to bed occupancy for a longer period. Attracting more patients and improvement of efficiency of management to assure that utilization of facilities is smooth running will guarantee an increase in the average productivity in hospital production.

Table 5.3

Regression Scores – Government Hospitals

Model	Unstandardized Coefficients		t	Sig.
	B	Std. Error		
(Constant)	-3.839	5.589	-.687	.617
Bed occupancy ratio	-4.607	5.163	-.892	.536
Nurse availability ratio	.751	1.727	.435	.739
Doctor availability ratio	.302	.406	.742	.593
Phy ratio	-6.203	7.478	-.830	.559
Eqtotal	10.948	4.567	2.397	.252

F=2.935	P=.415

R = . 968

In the case of government hospitals, nurses' availability ratio, doctors' availability ratio and equipment availability ratio are found to influence the efficiency of a hospital positively. Physical infrastructure ratio and bed occupancy rate are found to influence the efficiency of the public hospital negatively.

In public hospitals, the number of beds for maternity services is low when compared to the private hospitals. In the inefficient hospitals there is under utilization of beds as is shown by a lower rate of bed occupancy and in the efficient ones, there is over crowding. Either way, the utilization of beds is

not taking place in the most efficient way. High occupancy rates could also be taken to suggest that the problem is more of under-capacity than oversupply. That could be the reason why bed occupancy rate is having a negative impact on hospital efficiency.

Physical infrastructure is seen to contribute negatively to efficiency. In public hospitals, the excessive units of physical infrastructure can be a proxy variable for poor skills in hospital management which results in inefficiency. It is seen that if infrastructure is there, it is either not functioning effectively or the red tapism leads to the inefficient use of the infrastructure. In one of the public hospitals, it was seen that the hospital had purchased a scanning machine. A radiologist was not there to operate the machine. The machine remained idle for almost a year before the authorities could get sanction for appointing a part time, contract doctor to come there and render services.

Nurses' availability ratio is contributing positively to efficiency. As discussed earlier, in the case of maternal care, the service of nurses becomes crucially important since the services of an experienced care-provider is highly essential for both the mother and the newborn.

Doctors' availability ratio is a positive contributing factor. In the private hospitals, the economies of scale and the economical decisions of the management might lead to the availability of service of a much smaller number of doctors. In government hospitals, a minimum number of doctors' posts will be there and they will be available there. Since the area of study was Ernakulam district, the city with the largest density of urban population, all the doctors appointed to these hospitals were found to be attending duty. Almost all the taluk hospitals considered are located in urban areas. (This is not the case in rural areas where, the appointed doctors go on long leave, as they are not prepared to live away from the so-called 'civilisation'.) Cost, (here, the doctor's fee) is definitely the most important factor, but since that is not

considered here, no assured comments can be made on it. But it can be definitely surmised that a considerable number of patients coming to the doctor for ante natal check-ups will definitely come to the hospital for delivery. This contributes positively to the efficiency of hospitals.

Equipment index was also found to contribute positively to the efficiency of hospitals. This points towards the efficient utilization of the equipments available. Probably, this has a bearing on the efficient functioning of doctors and nurses.

Ratio analysis

The simplest way of measuring efficiency is through the use of simple ratios, such as staff intensity ratio, bed occupancy ratio, etc.

A t-test was conducted to compare the means of explanatory variables like bed occupancy ratio, nurses availability ratio, non-technical staff ratio, doctors availability ratio and ratio of number of OP handled. A t-test is conducted to determine whether two sample means are equal.

The explanatory variables considered for comparison of means are bed occupancy ratio, nurses' availability ratio, non-technical ratio, doctors' availability ratio and number of OP cases handled by the doctor per week.

Bed occupancy ratio is calculated as ratio of total number of inpatient days to bed days. Bed days are calculated by multiplying the number of beds per hospital by three sixty-five days. Bed occupancy ratio is the ratio of total number of inpatient days to bed days. Nurses' availability ratio is calculated as a ratio of number of inpatient days to nurse days. Number of nurse days available is the product of the number of nurses and number of days they are available. Non-technical ratio is the ratio of inpatient days to non-technical staff days available days. Non-technical staff days, again, is the product of

number of non-technical staff available and number of days they are available. Doctors' availability ratio is the number of inpatient days to doctor days available. Doctor days is got from multiplying number of doctors and number of days they are available. The next explanatory variable is the number of OP cases handled by the doctor per week. The comparison of means of all the explanatory variables is calculated. This is shown in Table 5.4.

Table 5.4

T-Test Results

	Hospital	N	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Bed occupancy ratio	Private	33	.1119	.23164	-.570	38	.572
	Government	7	.1690	.28462			
Nurses availability ratio	Private	33	.9242	.76597	-1.222	38	.229
	Government	7	1.4201	1.70118			
Non technical ratio	Private	33	1.4342	1.57043	.411	38	.684
	Government	7	1.1478	2.15405			
Doctor availability ratio	Private	33	2.0968	2.27331	-.835	38	.409
	Government	7	2.9714	3.53976			
NOOPD	Private	32	42.1875	29.31854	-6.489	37	.000*
	Government	7	141.1429	61.61014	-1.531		
Physical infrastructure ratio	Private	33	1.2991	0.74436	3.44	38	0.002
	Government	7	0.3685	0.2349			
Equipment Total	Private	33	0.4711	0.37418	0.537	38	0.595
	Government	7	0.3925	0.1922			

* significant

When the staff availability ratio of the public hospitals is compared with that of the private hospitals, we can see that the availability of the staff is less for the public hospitals. To put it in other words, the staff of public hospitals can be seen over strained or over utilized. When for each nurse day, there is an average service of 1.42 inpatients rendered in public hospitals, the

same ratio is just 0.92 for the private hospitals. So the 'service ratio' (which could be defined as the number of in-patients served per staff day available) is higher for public hospitals. This must be contributing positively to the assessment of advantages of the hospitals. They will naturally think that nurses would be readily available in the private hospitals *vis- a- vis* public hospitals.

In the case of doctors also, the same over utilization can be seen. The number of in-patients attended to by a doctor comes to approximately three when the same ratio is around two for private hospitals. This will, as far as the patients are concerned, guarantee personalized service when compared with public hospitals. It is not the case with non-technical staff ratio. Analysis reveals that the public hospital is better equipped with a more relaxed service ratio (one staff attending to 1.15 in-patients compared with private hospital, where each non-technical staff has to take care of 1.43 inpatients). In the case of number of outpatient cases handled by a doctor per week, there is a very significant difference between the private sector and the public sector. The number of outpatient cases per doctor per week is found to be 141.14 in the case of public hospitals as against of 42.19 cases in the private sector. The scale of difference is much lower than the in-patient (in this specific case, number of deliveries) servicing (where it is three patients per day as against two per day).

Beds can be viewed as an all-encompassing basic input for those hospitals providing inpatient facilities because the expansion of other inputs revolves around this key input.

Bed occupancy rate is 0.11 for the private sector as against 0.17 for public hospitals. Number of in-patients per bed days is 0.11 for private hospitals. To put it otherwise, 0.11 patients are served per bed day in a private hospital as compared to 0.17 patients per bed day in a public hospital.

High occupancy rates and turnover rates could also be taken to suggest that the problem is more of under-capacity than oversupply.

When the infrastructure and equipment availability are concerned, the private sector is at a much better position when compared to the public sector. Index of physical infrastructure (which shows the availability of physical infrastructure per hospital) in private sector is 1.2991 vis- a- vis 0.3685 in public hospitals. This shows that the private hospitals are in a far better position as far as the infrastructural facilities are concerned. This is proved when we compare the amount going in to the annual maintenance expenditure. The amount, on an average, earmarked for maintenance expenditure in private medical institutions alone is thirty times the amount, on an average, earmarked for maintenance in public hospitals. Maintenance forms only a part of infrasatructural facility, as it is solely concerned with the retaining of productivity of existing equipments.

Index of total number of equipments (which shows the total number of equipments per hospital) is 0.4711 in the private sector vis- a -vis 0.3925 in the public hospitals. This is proof to the fact that the availability of equipments is higher in the private sector when compared with the public sector.

Summary of findings

From the series of analyses performed on the data collected, it is clear that the private hospitals are definitely in a better position as far as the technical efficiency is concerned.

As regards the technical efficiency, the attempt is to look at the provision and utilization of obstetric care services from the providers' perspective. The problem is the most efficient utilization of the facilities provided. The nurses availability ratio and equipment index are found to contribute positively to both public hospitals and private hospitals. This could

be due to the essentiality of the particular staff and also equipments in the case of obstetric care. The process of delivery, which consumes an average of four to five days of hospital confinement in a woman's life, has now a days become high-tech in nature. The process of delivery has become highly equipment-centered. Even in the absence of a qualified medical practitioner, the experienced staff (nurses) can keep efficient vigil with the help of the equipments. Foetal and maternal distress can be detected and monitored even in the absence of a doctor and timely intervention can be precisely planned by the time the qualified medical practitioner arrives.

Doctors' availability is another positive contributor to efficiency as far as the public hospitals are concerned. This is due to the negligibly paid service available in the public hospitals. It is only natural that the poorest of the poor still have only one resort – the public hospitals. Medical care is highly physician centered. In the case of government doctors, they belong to the 'private in public' segment of providers. So they assure that whoever is approaching them for OP consultation, will be their clients till term. The availability of beds (which cannot be guaranteed other wise) are guaranteed for such patients. In the private sector, economies of scale, economy measures of the management and multiple-hospital consultancy of gyanaecologists together makes it a negative influence on the efficiency of hospitals. The other factors like non-technical ratio, bed occupancy ratio, and physical infrastructure ratio are found to have a negative effect on efficiency of hospitals.

The poor performance of the public hospitals can be well justified with the fact that the capital expenditure going in to the health sector is getting reduced year after year. The combined contribution of the government and the hospital development societies is not found enough to pull up the public institutions to a satisfactory level of functioning.

When the essential staff ratio of the private hospitals are compared with those of public hospitals, the customers are found better disposed in the case of private hospitals. When the doctors in the private hospital take care of 2.09 in-patients per doctors' day, those in the private hospitals take care of 2.97 in-patients per doctors' day. This may not be due to the over-supply of patients. This could be so because, as far as the number of doctors available is concerned, there is an under capacity with respect to the hospital. Another possible factor is that; in government hospital recruitment of doctors do not take place that often. The strength of staff does not increase that often. It is already discussed that even though the salary component of health expenditure rose, it did not result in increased staff strength. Manpower in the government allopathic system declined or remained static during the 1990s while the bed strength grew moderately. (Kutty.VR,1999)[9]

When the nurses on an average take care of 0.92 inpatients per nurse day, those in the public hospitals take care of 1.42 in-patients per nurse day. This could be due to the fact that there is an excess number of nurses in the private sector as against the public sector. This is a case of exploitation of labour. The nurses, in the public sector, on an average, take home a salary of around rupees six thousand per month. It has to be noted that they are all graduates in nursing care. In the private sector, the hospitals are found employing nurses, who are only diploma holders, for an average salary of around two thousand per month. So, naturally in the place of one nurse in the public hospital, a private hospital can employ at least three more nurses. Another trend found in the private hospitals is that, most of the large hospitals have nursing schools run by them. The students joining the course are forced to execute a bond assuring the management that they will serve the hospital for a specified period of time on payment of a stipulated stipend. All these add to the total number strength of the 'nurses' force' (sans proper qualification) in the private medical institution.

As far as non-technical staff is concerned, in the private sector, 1.4 inpatients are served per staff day as against 1.1 in-patients per staff day in public sector. But this is not a very significant difference. It can be interpreted that the doctors, the nurses and beds remain underutilized in the case of private hospital, or that there is idle capacity in the case of private hospital.

The comparison of mean values of explanatory variables show that there is an over-utilisation of facilities in the public sector as compared to the private sector. The available resources are found maximum utilized in the government sector. As the efficiency score clarifies, this cannot be a final test for efficiency. It can be confirmed that the over utilized facilities offer low quality care. High occupancy rates and turnover rates could also be taken to suggest that the problem is more of under-capacity than oversupply. One doctor for every ten beds is the usually observed ratio seen in other countries. According to the study in Ernakulam, in the public hospitals, it is seen to be one doctor for 17.5 beds and one doctor for 19 beds in private doctors. Bed-nurse ratio was found to be 8.25 for private hospitals and 8.4 for public hospitals. This stands well against the state average of 8.3. Bed to other staff ratio is normally 4.2 according to international trend.

The number of OP cases per doctor per day is an indicator of the average productivity of doctor. (Varatharajan et al, 2002)[10] A doctor in the public sector has 141.14 OP cases per week as against 42.19 cases per doctor per week in the private sector. In-patient turnover is two per doctor for private sector while it is three per doctor in public sector. Even then, it is seen that only around 5626 deliveries take place in the public hospitals when 30,234 deliveries take place in the private sector. This might be due to the fact that those coming to the government doctor for antenatal check up might go to private hospital for delivery. This ratio is seen contributing negatively to the efficiency of private hospitals (may be, due to economies of scale, economy measures of the management, which restricts the number of doctors, or the

consultancy of the same doctor in many hospitals) and positively to the efficiency of public hospitals (the contributing factor could be the negligibly paid service along with the assurance that the clients of the government doctors belonging to the private in public category go only to them for delivery).

Since health is a state subject, state's policies and financial soundness greatly influences the evolution and strength of the health system. As mentioned earlier, Kerala's fiscal deficit, public debt and debt servicing have crossed all acceptable limits during the 1990s. Persistent economic stagnation, growing unemployment and an acute fiscal crisis in Kerala are raising serious doubts about future health prospects. (Varatharajan,2004)[11]

A steep increase in the salary component in the revenue expenditure led to a cut back on supplies and maintenance; the cutback was felt heavily by the district and *taluk* hospitals, which formed the sample of study (Kutty, 1999).[12] Capital expenditure as a proportion of total government health expenditure also dropped to 3.3% in 2002-03 from 7% in 1994-95; and it was estimated that it might decline further to 2.8% in 2003-04. The share of government health expenditure *per se* has come down from 1.46% of GSDP in 1992-93 to 1.17% in 2001-02. Health's share in total government maintenance expenditure has come down from 1.39% in 1990-91 to 0.78% in1999-2000. Its share in total revenue expenditure came down from 40.12% in 1990-91 to 25.83% in 1999-2000. Hence, an increase in government health expenditure did not lead to the non-salary component.

Even though the salary component of health expenditure rose, it did not result in increased staff strength. Manpower in the government allopathic system declined or remained static during the 1990s while the bed strength grew moderately. Therefore, the increase in government expenditure failed to improve healthcare access to the people for whom the public health care

system exists. Therefore, one can come to the conclusion that high occupancy rates and turnover rates of the government institutions, as shown by the data, could be taken to suggest that the problem is more of under-capacity than oversupply. Hence, an increase in budgetary allocation to health is a necessary, but not a sufficient condition for better health care.

Whatever be the staff service ratios, equipment index or the physical index indices, the effective utilization pattern, is ultimately influenced by factors such as the feeling of provision of adequate care in private hospital, physical accessibility, behaviour of staff and doctors, etc.

In a study conducted on the preference for private sector in Andhra Pradesh in 2002, the respondents, who were patients, gave a positive rating to the dcotor's attitude, timely availability of service and other advantages in the private sector.

The Private sector is preferred in Andhra Pradesh, India

A study of consumer and producer attitude was conducted in six districts in the southern India state of Andhra Pradesh. The study included 72 in – depth interviews and 24 focus groups.

Private	Public
ATTITUDES OF DOCTORS	
"They speak well, inquire about our health." "Ask about everything from A to Z" "Look after everyone equally" "They take money... so give powerful medicine .....treat better."	" Does not talk to me, does not bother (about my feelings or the details of ny problems)" " Don't tell us what the problem is, first check give us medicines and ask us to go" "They are supposed to give us Rs. 1000 and 15 kg of rice for family planning operations; they give us Rs. 500 and 10 Kg rice and make us run around for the rest" " Any how they will get their money so they don't pay much attention"
CONVENIENCE	
"Treat us quickly ..." "We spend money but get cured faster" "I know Mr. Reddy. He is a government doctor but I go to him in the evening" "Can delay payment by 5-10 days. He is OK with that, he stays in the village itself"	"Do not attend to us immediately" " Have to stand in line for everything" "Doctor is there from 9a.m. to 4 p. m. __ when we need to go to work" "I have not been there, but seeing the surrounding ... I don't feel like going"
COST	
"Recent expenses came to Rs. 500 for 3 days ...had to shell out money immediately" "We have to be prepared to pay, you never know how much it is going to cost you"	"While coming out, compounders ask us for 10-20 Rs" "Any how, we have to buy medicine from outside"
ADVANTAGES	
"Even if I have to take a loan I will go to private place, they treat well"	"Malaria treatment __they come, examine blood, give tablets" "For family planning operations" "Polio drops" "In case I do not get cured in private hospital, but it is very rare".

Source : World Development Report, 2004

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. The social milieu of the state is changing and features of a consumer society are visible in all occupations. This has led to the commercialization and the commodification of health care. Health is no more seen as a right but as a commodity to be purchased by money. The huge remittance of foreign exchange from gulf countries even to

the low and middle-income group houses further reinforced this attitude. All these tendencies are leading to a virtual uncontrolled growth of the private medical care facilities in the state. (B.Ekbal, 2000)[13]

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Chapter VI

Summary and Conclusions

Health is on the one hand a highly personal responsibility and on the other nd a major public concern. It thus involves the joint efforts of the whole social bric, viz. the individual, the community and the state to protect and promote alth.

Health status of populations, as of individuals, has two broad influences, hich ultimately shape it: one, which can be characterized as the natural or genetic dowment, and the other as the environmental influence. The importance of one the other in particular situations may be debated, but it cannot be denied that in der to study the determinants of health, both groups of factors have to be nsidered.

The socio-economic status of an individual plays an important role in eciding the health status of the individual. This is well understood from nderson's model. According to Anderson's model, three sets of determinants are entified as influencing the health care utilization pattern of a population. Society nd systems determinants are postulated to influence individual determinants, hich directly impinge on service use. Societal determinants include the current tate 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 and its utilisation.

Health is a fundamental right. It has the characteristics of a public good, ich makes it imperative for the government to enter in to the market. It is the ty of the government to provide basic health facilities.

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

According to economic theory, it is socially optimal for the government to inance and possibly provide public and merit goods while it may be more efficient for the free market to finance and provide the private good.

Against all the descriptions quoted above, it is felt that the segregation of different types of health provision changes ultimately according to the nature of purchase of service. If it is mostly out-of-the-pocket expenditure, market failure can exist in the case of health care delivery. It is usually this existence of market failure, which is quoted as the reason for government intervention in health. But it is quite often seen that government too, can fail if it fails to get 'value for money'

henever it devotes public resources to health. And, in a situation where overnment failures outweigh market failures, ignoring them can lead to large ublic expenditures that benefit only the nonpoor or to services so defective that heir opportunity costs outweigh their benefits for most poor people.

The scene is made even worse in the case of economies, which have dopted structural adjustment programme. There has occurred a conscious cut in ealth expenditure. Primarily as government moves out of the health sector, where t previously existed as a major provider of health services, the private players ome in. This increases the cost of acquiring health services. Keeping into consideration the heterogeneity of the population with in the country itself, not all re affected due to the reduction in public health expenditure. It is the economically disadvantaged who bear the brunt of the situation.

In India, since independence, health was overlooked in the overall, larger development process. This resulted in an *ad hoc* approach to health without linking it to other aspects of development like clean water, sanitation, removal of poverty etc. The adoption of 'primary health care approach' in 1983 has shifted the focus to primary prevention technique i.e., the approach prevents the condition starting. It considers a more realistic, holistic view of the problem of health care.

Given the background of the poor health infrastructure, males and females suffer from ill health. However, women face unique risks because of their reproductive biology, and in a country with one of the world's highest maternal mortality ratios the dangers are particularly pronounced. One important component of 'primary health care approach' is maternal and child-care, including family planning.

The general health status of India reemphasizes its position as a third world country. However, the state of Kerala, a small state in India paints a different picture. It is a state at par, with the socio-economic indicators comparable with that of the developed nations. The indicators of maternal and child health are almost equal to those of the West.

The research problem is centered on the utilization of health care facilities in the State for obstetric care. The problem assumes significance given the fact that above 97% of the deliveries in the state are institutional in nature. The ratio of deliveries in the private sector is 60% as against a share of 40% for the public (government) institutions.

Of the fourteen districts in the state, Ernakulam was found to have the largest number of private medical institutions. So, the district was selected as the sample district. Data were collected from thirty-three for-profit, private hospitals (population was ninety hospitals with mini-theatre facilities in the district) and all the government hospitals with the above-mentioned facility. The efficiency score for the hospitals was derived with the help of Data Envelopment Analysis, a linear programming based model. The efficiency concept used is that of technical efficiency. 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".

Hypothesis of the study was that there is no efficiency difference between the public and private hospitals in delivering obstetric care. After analysis of the data and interpretation, the hypothesis was rejected as Private hospitals were found to be more efficient than the public sector.

esults of analysis

After analysis, it was found that the efficiency of private hospitals (0.8197) delivering obstetric care is much more than that of public hospitals (0.6648). round 64% of the private hospitals had an efficiency score of 1 (which is the aximum possible score). The same is true in the case of 57.1% of the public ospitals. In the second stage, an attempt was made to find the institutional factors, hich contributed to inefficiency in delivering obstetric care facility. A truncated egression was performed towards this end. The major output indicators were egressed with the efficiency scores to identify the institutional contributors of nefficiency.

From the series of analyses performed on the data collected, it is clear that he private hospitals are definitely in a better position as far as the technical fficiency is concerned.

As regards the technical efficiency, the attempt is to look at the provision and utilization of obstetric care services from the providers' perspective. The problem is the most efficient utilization of the facilities provided. The nurses availability ratio and equipment index are found to contribute positively to both public hospitals and private hospitals. This could be due to essentiality of the particular staff and also equipments in the case of obstetric care. The process of delivery, which consumes an average of four to five days of hospital confinement in a woman's life, has now a days become high-tech in nature. The process of delivery has become highly equipment-centered. Even in the absence of a qualified medical practitioner, the experienced staff (nurses) can keep efficient vigil with the help of the equipments. Foetal and maternal distress can be detected and monitored even in the absence of a doctor and timely intervention can be precisely planned by the time the qualified medical practitioner arrives.

Doctors' availability is another positive contributor to efficiency as far as ıe public hospitals are concerned. This is due to the negligibly paid service vailable in the public hospitals. It is only natural that the poorest of the poor still ave only one resort – the public hospitals. Medical care is highly physician entered. In the case of government doctors, they belong to the 'private in public' egment of providers. So they assure that whoever is approaching them for OP onsultation, will be their clients till term. The availability of beds (which cannot ıe guaranteed other wise) are guaranteed for such patients. In the private sector, conomies of scale, economy measures of the management and multiple-hospital onsultancy of gyanaecologists together make it a negative influence on the fficiency of hospitals. The other factors like non-technical ratio, bed occupancy atio, and physical infrastructure ratio are found to have a negative effect on efficiency of hospitals.

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When the essential staff ratio of the private hospitals are compared with those of public hospitals, the customers can be found better disposed in the case of private hospitals. When the doctors in the private hospital take care of 2.09 inpatients per doctors' day, those in the private hospitals take care of 2.97 inpatients per doctors' day. This may not be due to the over-supply of patients. This could be so because, as far as the number of doctors available is concerned, there is an under capacity of the hospital. Another possible factor is that, in government hospitals recruitment of doctors do not take place that often. The strength of staff does not increase that often. It is already discussed that even

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The comparison of mean values of explanatory variables show that there is an over-utilisation of facilities in the public sector as compared to the private sector. The available resources are found maximum utilized in the government

sector. As the efficiency score clarifies, this cannot be a final test for efficiency. It can be confirmed that the over utilized facilities offer low quality care. High occupancy rates and turnover rates could also be taken to suggest that the problem is more of under-capacity than oversupply.

Private versus public – the consequences

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.

More significantly, private sector has far outpaced the government facilities in the provision of sophisticated modalities of diagnosis and therapy, such as CT Scans, MRI Scans, Endoscopy Units etc. Simultaneously, public sector itself is being subjected to internal privatization. Because of the irregular supply of medicines and other materials patients seeking medical care from the government hospitals are forced to buy them from outside. Also the laboratory facilities are quite inadequate in the government hospitals and patients have to depend upon the private labs for getting investigations done in time.

In India, the private sector almost exclusively works on user charges, because insurance coverage is negligible. There are no restrictions or guidelines from the Medical council or the state on the quantum of fees charged by the doctor, the nursing home or hospital. In the for-profit private sector, this situation

has encouraged increasing of charges, especially by the experienced and well-known doctors. It is also seen that such doctors earn disproportionately high income as compared to their declared income.

While health care access for people in the rural areas is not that comfortable when compared with those in urban areas, (this rural-urban distinction is only partially applicable in the Kerala context, where we don't have rural urban duality, it is a rural-urban continuum that we have) the problem in the urban areas is that of rising medical care cost. This rise in cost is not just due to the fee paid to the 'celebrity doctors', but also due to the usage of high technology. Doctors are regularly trained in the most recent, advanced medical technologies. In addition to the increasing cost, this trend is also found encouraging a tendency to advertise these technology/ 'facilities' to the general public. This becomes necessary because the investment involved in the purchase, housing and maintaining such instruments run in to crores and in the market set-up, for getting adequate return on such investment, continuous and unnecessary use of the instrument becomes an economic necessity. The issue of over medicalisation is another dangerous by product of surging private practice in the nation. A large majority of 50,000 drugs and formulations available in our country are hazardous, useless, unnecessary and irrational. Such products not only harm the interests of consumers and inculcate irrational medical practice, but are also causing waste of resources and increasing cost of medical care. This ruthless resorting and irrational over medicalisation in private practice is related to supplier-induced demands.

legulation

It is well recognised that the market failure affecting both the demand and upply sides of the market for health services will have significant implications for ost and quality of health care. Given the undesirable consequences of private ector growth in health, there has been virtual absence of various mechanisms, oth within the government and outside the government, to influence the growth f this sector in desirable direction. The studies indicate that private health care ignificantly affects both the cost and quality of available health care services in ndia. The only possible solution is regulation of health care industry.

Regulation occurs when a government exerts control over the activities of individuals and firms. More specifically, regulation has been defined as "government action to manipulate prices, quantities, (and distribution), and quality of products". The exact "action" is often described as the regulatory intervention or regulatory mechanism and can be legal controls or incentives. Legal controls are legislated requirements that can lead to punitive action if they are not met. To be effective, regulation requires substantial information and enforcement machinery. The regulatory process involves setting the policy agenda, designing the legislation, and implementing and enforcing its requirements. Regulation serves to discourage perverse practices and to improve equity.

The factors that contribute to the poor quality of services offered by the private sector are lack of monitoring by authorities, outdated and inadequate legislation, and the inability or failure of the government to enforce existing regulations. The respective medical councils in states in India are not enforcing the laws relating to the registration and licensing of individual practitioners. This situation has required the judiciary to intervene in affairs that should have been handled by the medical councils. The studies also indicated that professional

odies, whether sanctioned by government or voluntary medical associations, have ot played a significant role in improving the practices of private medicine.

The failure of the government to enact the necessary legislation and trengthen existing laws permits many of these market imperfections to roliferate. In many instances, powerful medical lobbies have opposed the overnment's efforts to regulate. Many state governments that wanted to enact and mplement legislation governing private hospitals found their efforts thwarted.

In India, with its dominant private health sector and relatively weak overnment oversight, there is a need to develop self-regulatory systems that nvolve the stakeholders and that are less threatening to providers than government egulation. One of the foremost steps for any intervention or involvement would e to develop an appropriate information base on the private health sector. Many governments are handicapped by a lack of information on this dominant sector. Information on private providers could be linked with registration and licensing mechanisms. The presence of a strong public health care system is important to check many of the undesirable and unintended consequences of growth of private sector. The access and availability of public services critically influences the price structure, availability and even the quality of services in the private sector.

Until recently, professional bodies exercised regulatory authority over medical and allied professionals in India. Although several explanations can be given for regulatory authorities' lack of control over their members, it cannot be denied that they were also constrained in their performance by a lack of autonomy and certain external factors, such as civic-public interactions, political structures, and preference. However, they also clearly suffered from a lack of motivation and self-interest, which undermined their efficacy.

In India, there is no system of effective continuing education of doctors ngaged in medical practice. Once registered with the medical council, the doctor ; not required to undergo retraining or examination for renewal of registration. As result, there is no effective mechanism to provide correct information to doctors nd to orient them to rational medical practice. This lacuna in doctors continuing ducation is sought to be filled by the industry through their medical epresentatives. It is virtually that educates doctors after they start practicing. This often-unholy alliance is detrimental to the interests of the patient.

These follies on part of the doctors and the system as such get reflected in obstetric care delivery in magnified proportions. The concern for the baby and the mother is emotionally exploited by the doctors. The unnecessary prescription of medicines, tests, ultrasound scans at different stages of pregnancy and at the last stage going in for caesarean delivery has all become a part of a 'medical racket' to which the doctors are also a party and the women are victims.

Standard models of hospital behavior, discussed by Leemore, 2003, predict that hospitals will respond to a diagnosis-specific price increase by raising the intensity of care provided to patients in that diagnosis, where intensity is measured by total costs, length of stay, number of surgical procedures, and number of intensive-care-unit (ICU) days. This explains the highly technical and unnecessary interventions and the increase in the case of caesarian sections in the specific case of obstetric care delivery.

For example, now Kerala has one of the highest rates of caesarean deliveries in the world. Caesarean rates were reported to be 22% of all deliveries in rural areas and 34.5% in urban areas. (In the present study, the percentage of c-sections to normal deliveries in the study field was around 60% and 40% respectively.)The extra cost of caesarean deliveries in the state was estimated to be

Rs 25 million (US$ 540 000) in the year 2000. Around 75% of the pregnant mothers had at least one ultrasonography test without any notable change in the management or outcome of pregnancy.

Whatever is the nature of competition between the public and private sector, or the regulatory environment in the state is, the fact that the private sector in influencing the public sector must be accepted. The public sector does not merely coexist with the private sector. Since private sector is dominating above 60% of the patient market and has more than 80% of the doctors working for it, the public sector is in many ways led by the private sector. The reality is that the norms of medical practice are therefore set by the private sector. The value system of the private sector medical care, namely, commercialization, high technology orientation etc. have come to dominate the practice of medicine.

Women as a genre, are a health-wise high-risk group. Women face unique risks because of their reproductive biology, and in a country with one of the highest maternal mortality ratios, the dangers are particularly pronounced. Obstetrics is largely preventive medicine. The aim of obstetrics and preventive medicine is to ensure that throughout pregnancy and after delivery, the mother will have good health and to ensure that every pregnancy will culminate in a healthy mother and a healthy baby.

Maternal mortality claims 514,000 women's lives each year. Nearly all these lives could be saved if affordable, good-quality obstetric care were available 24 hours a day, 7 days a week. Most of the deaths are caused by haemorrhage, obstructed labour, infection (sepsis), unsafe abortion and eclampsia (pregnancy induced hypertension). Indirect causes like malaria, HIV and anaemia also contribute to maternal deaths. For every woman who dies, an estimated 15 to 30 women suffer from chronic illnesses or injuries as a result of their pregnancies.

Obstetric fistula is a serious and isolating injury that would be significantly prevented through Emergency Obstetric Care. About fifteen per cent of all pregnancies will result in complications. Most complications occur randomly across all pregnancies, both high- and low-risk. They cannot be accurately predicted and most often cannot be prevented, but they *can* be treated.

Unless and until accessible medical care is given to women, the government can never even think of talking about equity in health care provision.

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ANNEX I

QUESTIONNAIRE

Sl.No.	Variable	Type	Code	Description	Units
1	Input	Capital	PHY	Physical Infrastructure	Index (1-0)
				Waiting room/hall	
				Consultation room	
				Ward	
				Delivery room	
				Theatre	
				Pharmacy Medical Scores	
				Medical Records Office	
				Kitchen/Mess/Canteen	
				Laundry	
				Emergency room	
				Sterilisation Unit	
				Laboratory	
				Blood Bank	
				Maintenance Department	
				Ambulances	
				Incinerator facility	
				Post-partum Centre	
				Total Number of beds	
				No.of functional toilets	
				No.of pipe connections	
2	Input	Capital	EQPT	Equipment index	Index (1-0)
				Autoclave	

				Syringes and needles	
				Vaccine carrier ice-pack	
				Cheatle forceps	
				Dry dressing jar to carry Ch.forceps	
				Scale (infant)	
				Scale (adult)	
				Health education material	
				Clinical thermometer	
				Tape measure	
				Obstetric table	
				Foetal Stethoscope	
				BP Apparatus	
				Examination bed (in stage 1)	
				Pelvi-metre	
				Incubator	
				Warmer	
				Photo therapy machine	
				Ultrasound scanning	
				Foetal Doppler	
				Cardio-tocographic monitor	
				Foetal heart monitor	
				Vacuum extractor	
				Forceps	
				Iv drip set	
				Baby resuscitation table	
				Mother and baby central oxygen line	
				Steriliser	

				Refrigerator	
3	Input	Capital	BED	No.of beds	
4.	Input	Capital	DRUG	Expenditure on drugs	
5	Input	Capital	MAINT	Expenditure on maintenance	
6	Input	Capital	DOC	No. of gynaecologists Specify no. for all shifts	S I S II S III
7	Input	Staff	NURS	No. of nurses (Total and posted in labour room & ward)	S I S II S III
8	Input	Staff	NTECH	No. of non-technical staff (in labour room & ward)	SI SII SIII
9	Input	Staff	NoSU	No.of supervisors in Gynaecology section for all shifts	SI SII SIII
10	Input	Staff	OPDW	OPD hours of doctors/week	
11	Input	Staff	NoOPD	No. of OP/day per doctor	
12	Input	Staff	LABW	Lab hours/week	
13	Output		Totdel	Total number of deliveries per year	
14	Output		NoCsY	Total no. of C-sections Per year	
15	Output		NoNDY	No. of normal deliveries Per year	
16	Output		GCHRG	Gross Charges	ND C-Section
17	Output		RRNT	Room rent	Ward bed Doubleroom Singleroom

18			ADND	No.of IP days for a Normal Delivery	
19			ADCS	No.of IP days for a C-Section	
20				Doctor's fee- professional/ salary	
21				Nurses' salary	
22				Non-technical staff salary	

ANNEX II

VARIABLES SELECTED AND THEIR DEFINITIONS

Variable	Type	Description	Units
Input	Capital	Physical infrastructure	
	Capital	Equipments index	
	Capital	No.of beds	
	Capital	Specialised infrastructure	
	Capital	Specialised Equipments	
	Staff	OPD hours /week	
Output		Out patient hours	
		Inpatient days	
Explanatory		Bed occupancy ratio	
		Nurses availability ratio	
		Non-technical ratio	
		Doctor availability ratio	
		Physical infrastructure ratio	

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