SOCIO ECONOMIC FACTORS IN CHILD HEALTH STATUS
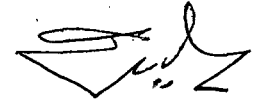## A KERALA VILLAGE STUDY

Dissertation submitted in partial fulfilment of the requirements of
the award of the degree of Master of Philosophy
of Jawaharlal Nehru University, New Delhi

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CENTRE FOR DEVELOPMENT STUDIES
TRIVANDRUM

1987

I hereby affirm that the research for this dissertation titled **"SOCIO ECONOMIC FACTORS IN CHILD HEALTH STATUS-A KERALA VILLAGE STUDY"** being submitted to the Jawaharlal Nehru University for the award of the Degree of Master of Philosophy was carried out entirely by me at the Centre for Development Studies, Trivandrum.
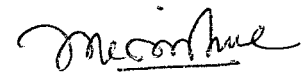
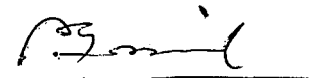Trivandrum   **V. RAMANKUTTY**

Certified that this dissertation is the bonafide work of Sri.V. Ramankutty and has not been considered for the award of any other degree by any other University. The dissertation may be forwarded for evaluation.

                                           T.N. KRISHNAN
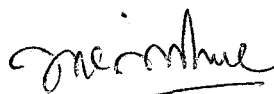   Fellow

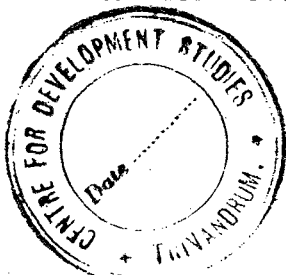Supervisors

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CHAPTER I

CHILD HEALTH AND SOCIOECONOMIC STATUS

1. Introduction:

Child health as an area of policy option has been given much attention by planners, health economists and public health experts of late. This increasing interest has been justified on many counts. From a medical point of view, the sheer size of the child population in most developing countries, both in absolute terms as well as in relation to the total population of the country, is the primary justificiation for allotment of more resources in improving child health status. The developing world shares 75% of the world population, 86% of the annual births, 97% of annual deaths under one year of age, and 98% of deaths 1 - 4 years of age[1]. This gives an idea of the burden of child mortality and morbidity borne by the developing countries. Apart from the sheer size, the child population, especially in the third world, is characterised by its increased vulnerability to the ravages of disease, as it is inadequately protected against infections, nutritional and other environmental deprivation.

To the health economist, the area of child health is equally challenging. If the returns to investment in health care and supportive infrastructure are to be quantified in some way, the

child mortality and morbidity statistics provide one of the most effective ways of comparing these across countries. In fact the Infant Mortality Rate or IMR is universally accepted as one of the important indices of the developmental status of a nation.

Nevertheless, the economic questions of investment priorities in child health are from far from being settled. To an extent this is also a reflection of the general debate going on about health care as an economic good. The question of externalities generated by investment in such other areas as protected water supply and better nutrition, having an effect upon general conditions and health, especially on child health, is important. It has been stated that "action taken to redress inequalities in health must be as much or more outside the scope of health and poersonal services sector than within it"[2]. Another important area of continuing debate has been the question of organisation of medical care. The protagonists of the 'free market' school hold that provision of free medical care, subsidized by the state, would lead to over-utilisation of services and deviation from 'Pareto optimality'. To the extent that some sections of society cannot afford the-market prices of medical care, their incomes should be supple-mented. The objections to this point of view have been many: the central theme being that the market structure in health care provision is not competitive, there is no free and easy entry for 'producers' or suppliers, there is a large disparity in infor-

mation between suppliers and consumers, and there are extrerna-
lities which distort market considerations[3].

But the existence of a state subsidised health care faci-
lity, which in principle is accessible to everyone, is not in itself
an answer to the problem of equity of distribution of health care.
Too much of the present discussion on equality of access to health
services has been conducted in terms of whether or not proportion-
ate use (and not use in relation to need) is made of different
services by different classes[4]. "The point is that the benefit
derived by an individual from a given volume of government ex-
penditure depends upon the characteristics of that individual.
Hence the dictum that the government ought to treat its citizens
equally becoms ambiguous: equality of expenditure on different
individuals does not produce equality of benefit to them"[5].

In fact the benefits of the state-subsidised health care sector
are usually enjoyed more by the privileged groups, whereas the
poorer sections, who usually have poorer health conditions and
hence perhaps have more 'need' of corrective health measures,
have to make do with a disproportionately meagre share of the
health care services. Moreover, the opportunity cost to them
of using these services, which are supposedly free, is much more
on account of number of working days lost etc.

Under such conditions, better awareness of health care facilities, which could be induced by better levels of education and a climate of greater sociopolitical justice, could go a long way towards reduction in inequalities in the utilization of health services. In other words, measures to raise the health demand will contribute to meeting the health care needs. In fact, this is one of the hypotheses which can explain the observed fact that a reduction in the inequality of distribution of income produces a reduction in infant mortality rates[6]. To the extent that the underprivileged sections of society are encouraged to utilize health resources more, in this particular respect state-subsidised health care has an income distribution effect in favour of more equity. This has been offered as an explanatory hypothesis in case of states like Kerala, characterized by poor indicators of economic development like per capita income but better indicators of social development like literacy. This constitutes an important aspect of the life of the people which cannot be captured by coventional indicators of poverty.

2. Economic approaches to child health:

An examination of the world health situation clearly indicates the wide variation in health status between peoples of different countries of the world, as also among different regions within the same country, as measured by any of the accepted health

indicators like mortality rates or expectation of life. The level of 'health development' corresponds to the degree of economic advancement, with a few notable exceptions. To explain the intricacies of this relationship between health status of populations and their economic development, a number of empirical studies have been conducted in different parts of the world. Many of them provide explanatory hypotheses for some of the relationships that have been observed, but the total picture is far from complete.

A critical analysis of the literature reveals two broad approaches to health care. · The first approach looks at the problem of underdevelopment in health as an economic and technical problem. Here the central idea is that resources are limited and those which may be employed in 'producing' health can have alternative uses. Thus the cause of underdevelopment in health is either inadequate resources to deploy in the health sector, be it manpower, or infrastructure, or the wrong priorities in allocation of resources. It becomes imperative that an optimun allocation of resources in health be arrived at. This is especially so in the case of the less developed countries, who have less to invest, and more health care needs to meet. Technology has the role of providing alternative, more cost effective paths to health goals. Developments in health technology have brought us to the point where considerable gains in health are possible for most of the less developed countries of the world with

marginal increments in health investments if they are willing to make the right choice of technique. The choice in this case would generally involve low cost, community oriented preventive measures and the employment of medical auxiliaries with shorter training in place of modern medical specialists. This appears to be the point of view generally most acceptable to the inter-national agencies concerned with the health of underdeveloped populations, like the UNICEF[7].

The other point of view looks at health from a socio-political angle. Most underdeveloped countries of the world are characterised by extreme variations in the economic power of different classes making up the society. The conflicts arising out of the exploitation of the majority by a privileged few find their reflection in the health sector also. The social reality of disease itself is largely born out of this conflict. The dominant elements in society oppose any change in this power structure, including the health sector, and this limits the solutions that are available. According to this view, the conflict is present in international relations in health also, leading to exploitation of less developed countries by the industrially advanced nations in the health sector. The exploitation takes many forms, including the drainage of trained manpower, the dominance of the pharma-ceutical market in these countries by multinational corporations, and wrong nutritional practices propogated by companies of origin

in the rich countries. This exploitation is at the root of all underdevelopment in health[8].

Going by any mode of analysis, there are some societies in the international community which have registered impressive health gains in the face of adverse economic conditions. China, Cuba, Sri Lanka, and Costa Rica are examples of such countries, and Kerala State in India if taken separately also has had quite a commendable record in the health sector in the past few decades. "High rates of infant and child mortality are one of the heavier burdens of borne by the populations of the less developed world"[9]. It is interesting to see how some societies in the underdeveloped world have borne this burden more gracefully than others.

3. Health as human capital:

One important concept in health economics is that of health as investment. The theory of development of human capital looks upon education and health as two inputs in the formation of human capital. But unlike education, measurement of health as human capital is complicated by the negative indicators like death rate, the nonhomogenous inputs like preventive and curative services, the impact of policies with indirect effect on health such as housing sanitation etc. By regressing per capita medical expenses on per capita GDP, of various countries, Newhouse has shown that medical care is a luxury good with an elasticity greater

than one[10]. This means that as per capita income goes up, per capita expenditure on medical care is likely to go up more than proportionately. This holds true even for less developed countries though in a weaker form. This is partly explained by the world-wide currency of health technology, and partly by the fact that the demand for health care, in the sense of ability and willingness to pay, is different from the need, in the objective sense of normative health needs defined by the expert, for categories of health care. Thus demand may go up with income, whereas the need, at least in some cases, should come down with income.

5. Socioeconomic factors and infant mortality rates:

It has been recognized that the infant mortaltity rate - I M R - is one of the most sensitive indicators of socioeconomic development. This means that socioeconomic factors have a significant role in determining the IMR. There have been a number of attempts to study the intricacies of these relationships. Most of them have concentrated on a few variables like income, education, sociocultural factors and the availability and utilization of health care.

For instance, Fuchs traces the improvement in health indicators in the United States, parallel to the growth of the economy. The decline in death rate for age groups 1-4, and 5-14 years have been better than the decline in IMR. Whereas the

IMR showed a decline of 3% annually, from 1900, the death rate of 5-14 year olds declined at 3.5% and the decline for the death rate 1-4 year olds has been at the rate of 5% annually[11]. This perhaps is an indication that extraneous influences have a greater role to play in the mortality and health status of older children than infants. Rodgers comments on the relation of income and inequality to mortality: life expectancy at birth, at five years and the IMR is a function of both income and income distribution. At the individual level, as the income goes up, life expectation goes up, in a non linear fashion[12]. This can be captured by relating mean per capita income to IMR and life expectancy across country data. Also within the same income group, wider dispersion of income results in a lower average life expectation. Income may have a negative effect on mortality in some age cohorts, and a positive one in others, due to the health diminishing effects of some forms of consumption. The effect of all types of income is negative with respect to infant mortality rate[13]. Income differentials may have a differential impact on age specific mortality and morbidity. Thus the stark differences between race and income classes brought out by the IMR statistics is not present with respect to 6-11 year olds in the U.S.[14]. There is also the view that what is more important in the aggregate analysis is the distribution of income rather than averages like per capita income. Flegg has shown that a 1% reduction in the co efficient of variation in income of different less developed countries would reduce IMR

by 0.471%[15]. One of the most significant studies relating income to IMR has come from Brazil. In a study relating IMR to real wages of workers in the state of Sao Paulo over a number of years Wood has shown that IMR has gone up when real wages declined[16]. This refutes the contention that once IMR has come down, to certain levels, it does not go up again.

6. The role of education:

Quite a number of studies point to the favourable effect of maternal education in reducing the IMR. From two surveys in Nigeria, maternal education seems to be the single most powerful determinant of the level of child mortality[17]. There was a strong relationship of female education to low infant, childhood and over-all mortality in Peru[18]. This is similar to findings of studies from Mexico[19], Philippines, Indonesia, and Pakistan[20], and Costa Rica[21]. Most of the studies have been on the basis of the analysis of data collected from the world fertility surveys. It is remarkable that the single variant of female education holds true in its explanatory power across such a varied group of nations scattered across the globe. In Brazil, mother's education makes a difference in some areas, but elsewhere, if the infrastructure for health care is not available, education doesnot seem to make a difference[22]. This points to the fact that awareness alone may not enable women to take the necessary steps to better the children's health if the health care facilities are not available.

Womens' education and its impact on child health has also been analysed in terms of the use women put their time to. The mother's time spent in child care acties is found to have a definitely positive effect on the health outcome of children, much more so than that of the time spent by other close relatives like siblings on child care activities[23],[24]. The quality of the mother's time is determined by her educational achievements, under the assumptions that (1) educated women are more likely to have an independent income and thereby more money to spend on child care, and (2) educated women are much more responsive to modern ideas of child care, and more likely to take independent decisions on child care situations. Against this must be weighed the fact that educated mothers are much more likely to be employed outside the home in situations where it would not be possible for them to simultaneously look after the child, thus severely curtailing the contact time for care available between mother and child. In such situations, the importance of other close family members like grandparents, elder siblings who can look after the child when the mother is gone, etc. would go up. There are also indications that women's education is effective only after a definite level has been reached, eg., the primary level[20]. Caldwell has postulated that this effect is irrespective of the quality and content of what is taught: what is more important is a process of acculturation which makes woman a part of the modern world[25]. Thus he infers that modern schools are

much more effective than traditional and religious schools in this function of equipping women with the receptivity to modern ideas of child care[26].

The changes in mortality, fertility behaviour, and the changing values of life are so intricately related that it is sometimes difficult to unravel some of the relationships. There is also the ever present problem of which is cause and which is effect. Diseases have a way of patterning themselves on the age structure of populations as well as their cultural characteristics. In this, the complex economic activity of twentieth century industrial societies is a major contributor to morbidity. Mackeon has commented on the tensions this way of life has given rise to as a cause of disease. In the 60,000 years that man has existed as a separate species, only 10,000 has been spent in organised agriculture and merely 300 in industry[27]. So the hunter-gatherer genes of biological man are finding it difficult to cope with the life of the homo economicus of the twentieth century. Many traditional societies of the less developed world, which did not know of some of the major killer diseases of the world till recent times, are beginning to experience them now[28]. This perhaps reflects increasing urbanization and resultant lifestyles. Behaviour influences can sometimes cut across all other socioeconomic variants in contributing to disease. Thus in a study from South India, IMR figures fail to show significant differences across caste and

income groups because of some universal religious practices which were detrimental to health[29]. These practices were related to the Hindu religious idea of ritual pollution which was firmly entrenched in society. Even in such a setting, it was found that mothers' education made some difference.

7. Neonatal and postneonatal mortality:

Infant mortality has traditionally been studied with reference to the age composition - ie; neonatal mortality vis a vis the postneonatal mortality. Neonatal mortality includes all infant deaths within the first twenty eight days of life; postneonatal mortality includes all deaths after this till the first birthday. Neonatal mortality is taken to represent the endogenous defects which are resistent to outside agents like medical and public health interventions. Exogenous influences like biological agents of disease, inadequate nutrition, etc. are supposed to act more on the postneonatal period, and therefore postneonatal mortality is much more amenable to control by interventions. So as infant deaths come down in number, the initial decline will occur in postneonatal mortality, leaving a mortality pattern dominated by neonatal deaths. But caution should be exercised in accepting this as the absolute truth: biological agents can have an influence in the neonatal period, as in the case of tetanus[30]. In fact control of neonatal tetanus can have an important impact in reducing IMR through reduction of neonatal mortality. Genetic tendencies

may be manifested in the postneonatal period also.

The pattern of mortality with respect to age was studied in great detail in fifteen projects scattered over North and South America[31]. Of several socioeconomic factors like father's occupation, mothers' education, protected water supply, sanitation, and living conditions, they found that these 'exogenous' influences had a greater impact on postneonatal mortality. In areas where some or any of these factors, were favourable, mortality was concentrated in the neonatal period. Moreover, eventhough infections like diarrhoea, septicemia, and tetanus contributed to neonatal mortality, infections as a contributory or associated cause of death were more important in the postneonatal period. These facts point to the greater importance of environmental influences in the postneonatal period. As environmental influences are brought under control, and the infant deaths come down in number, mortality is more and more coincentrated in the neonatal period.

8. Regional studies:

Regional studies have shed a great amount of light on the intricacies of the relationship between socioeconomic factors and health status. This is especially important to understand the good performance of some less developed countries in the health sector. Fuchs has pointed out that the relationship between IMR and income becomes weaker for two reasons:1) this relation is initially stronger for postneonatal mortality, which is reduced

in greater proportions as IMR comes down, and (2) as income
levels reach a certain minimum which ensures adequate nutrition,
water supply, and sanitation, further increments in income may
not have a proportionate effect on IMR. Possibly a third reason
is the wider diffusion of medical care throughout the population
which makes income increases to some extent superfluous. This
postulation means that if strategies are deliberately adapted which
selectively attack the major postneonatal mortality causes, and
the minimum of nutrition, sanitation and water supply are ensured,
through social welfare measures, this would go a long way in
reducing mortality in infants. The less developed countries are
actually faced with a technological choice in the health sphere,
and their decision is determined by not only their budget con-
straint, but also the development policy they have seen fit to
adopt [33]. This is more or less what Navarro speaks of when
he asserts that technology is not neutral, but is determined by
the sociopolitical situation[34]. This has been brought out by Ruzick
and Hansluwska[35]. There has been a slowdown in the decline
of mortality in South and South East Asian countries, even at levels
at which there is further scope for reduction. This has paralleled
a slowdown in economic growth. Many of the development policies
like the "green revolution" which has led to increased economic
growth has also led to an inequitable distribution of its benefits
and this inequality in wealth has slowed down the decline in
mortality. The outcome of a technological change depends on which

sectors of society are benefited by it: and this is in turn deter-
mined by the dominant elements in the society. This applies
to the health sector also.

China, Cuba, Sri Lanka and Kerala State in India belong
to the category of states which have achieved significant improve-
ment in the health status of their peoples, not withstanding the
low levels of economic development. Costa Rica, though not in
the same league as the other countries because of its higher per
capita income, also provides an interesting example of morbidity
and mortality decline achieved within a comparatively short period
in a framework of a largely agrarian society. Jamison, commenting
on China's health care systrem, underlines the different dimensions
of health policy where choice can be exercised[36]: (1) the extent
to which resources are made available, (2) relative emphasis
on preventive and curative measures,(3) extent to which highly
trained professionals or intermediate functionaries are used, (4)
way in which health care is addressed: directly through provision
of hospitals and care institutions or more through emphasis on
sanitation, health education etc. (5) extent to which a broad range
of services are integrated into a package for a geographic area,
or whether separate vertical programmes will address specific
diseases,. In Jamison's view, China's successes are attributable
to three policy choices: (1) resources mobilisation upto 3.3% of
the GDP in 1981, (2) emphasis on preventive measures,and (3)

campaigns against specific diseases. The Costa Rican experience has been analysed from different view points. Gonzales Vega points out that the Costa Rican experience is not a recent phenomenon: sustained efforts over a long period of time in an atmosphere of a unique social contract chracterised by a commitment to social equity, democracy and decentralisation of power have led to health improvements[37]. Saanz records that as a result of the poltitical decision to improve nutritional status and health by redistributing the GDP, the expenses on health is increased from 5.1% to 7.6% of the GDP[38]. Rosero Bixby describes the contribution women's education - which rose from 17% in 1960 to 65% in 1980 - in terms of literacy - and the start of a number of social security programmes as factors contributing to the IMR decline in Costa Rica[39].

The experience of Kerala in infant mortality decline has been subjected to detailed analysis. Zachariah and Patel are of the view that socioeconomic factors explain only a small percentage of the IMR differentials at the household level[40]. Economic factors such as ownership of land have relatively smaller role to play in determining the probability of infant deaths than the social factors such as mothers' education. They conclude that socioeconomic factors cannot explain much of the mortality differentials, the other factors like hospital utilization must be responsible for the differences.

Nag compares the states of Kerala and West Bengal for

the differential impact of social and economic development on mortality[41]. The indicators of economic development as well as per capita calorie consumption and equity of distribution of incomes are favourable to West Bengal, but the mortality figures are lower in Kerala. This is explained by Nag on the basis of better levels of female education, greater bargaining power of the rural poor, better communications network. All these studies indicate that it is a combination of better social development and utilization of available health infrastructure which has led to Kerala's lower mortality figures.

Analysis of individual factors and their impact in the selecteed areas of lower mortality has also proved useful. Jain, commenting on the relative roles of female education and better health services in decreasing the IMR in Uttar Pradesh and Kerala States that they are synergisitic[42]: as could be expected. Of all the areas studied, only Costa Rica seems to have a good coverage of population for protected water supply. Sri Lanka has a slightly better sanitation facility than the other areas studied. Feachem concludes that water supply and sanitation may not be necessary conditions for reduction of mortality[43]. Panikar has also commented on the poor water supply coverage in Kerala[44], whereas Nag remarks on the practice of boiling the water before drinking, prevalent in Kerala, which could go a long way in preventing the spread of waterborne diseases.

In a seminar on the IMR in Tamil Nadu in which he examines the performance of the state of Tamil Nadu in the matter of infant mortality rate, comparing it to both the all India figures as well those for Kerala, Nagaraj brings out the following points: (1) IMR in rural Tamil Nadu is comparatively high but remains at a stable level throughout the years whereas in urban Tamil Nadu it is lower, but more prone to fluctuations. This may indicate that environmental influences in the rural area, though not very favourable are fairly steady: whereas in the urban area, the benefits of protected water supply, health services etc. are highly unreliable. (2) Environmental factors still seem to play a large role in neonatal as well postneonatal mortality in Tamil Nadu. In Kerala urban as well as rural areas, the neonatal mortality makes up a higher percentage of IMR than the postneonatal. This may perhaps be due to decreasing influence of environment in Kerala's infant mortality. (3) Looking at the differential rates of infant mortality for males and females, the figures seem to be more favourable to females in Kerala. In other parts of India, female infants are at a disadvantage. But he cautions that the favourable figures for females in Kerala should not lead to the conclusion that there is no discrimination against female infants in Kerala, because females have a decided biological advantage over the males in terms of survival potential, and the better figures for female infants in Kerala may be inspite of any discrimination. Over the years, when there has been a steady decline

in the IMR in Kerala, this advantage that female infants have over males seems to be slowly being eroded. (4) The IMR for working mothers is very high in Tamil Nadu, whereas it is lower than average in Kerala. This has been explained in terms of cultural attributes like the joint family system still persisting in some form in Kerala, which give the children the protection of care by family members. On the other hand, in Tamil Nadu, many mothers are forced to take their children to their place of work where the insanitary surroundings may work to their disadvantage[45].

9. A framework for analysing socioeconomic influences on child mortality and morbidity:

One of the major tasks facing analysts of the child health situation in less developed countries is putting the various causes and effects into proper perspective. Assigning a proper weightage to each of the various factors can be a tricky task. Opinion on the effectiveness of clinical services, for instance, varies from the monotechnic point of view of professionals that clinical services are all important, to those that border on the iconoclastic, like that of Illich: that medical care has been positively harmful[46].

The main area of contention is the debate whether socioeconomic inputs like improvement in the mothers' education, sanitation facilities, protected water supply etc. should take

precedence over provision of medical care facilities for improvement of child health status. The experience of various societies are so varied that it is difficult to arrive at a concensus. In a review analysing various studies in different parts of the world, Caldwell puts forward the 'breakthrough' hypothesis[47]: the provision of health care facilities make a dramatic impact in those societies which have been primed by socioeconomic development. On the other hand, in places where medical facilities are available, but indicators like mothers' education are very unfavourable, the improvement of these may have a more direct impact than any further investments in hospitals or manpower development.

Joseph makes a major attempt at putting together the various factors into a framework of different levels of influence, along the folowing lines[48]:

(1) an underlying milieu of the politico economic organization, cultural norms and deviations, geographic and climatic conditions,

(2) proximate determinants of health status like education, income distribution, food distribution etc. which are subject to interventions,

(3) expressed service determinants like medical care, public health measures and self service and self care. Health services can have an important influence on health, but it depends on how far they are available and utilized.
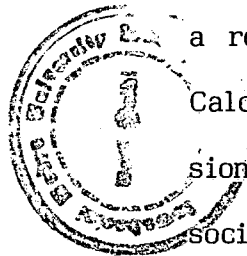
Barnum and Barlow, commenting on resource allocation for child survival, note that there is a failure by the policy makers to devise an integrated cost effective approach to the alloviation of community problems[9]. In a rich country, the penalty for inappropriate investment of resources is light, but it is much heavier in a poor country. Capital intensive curative institutions, institutional births etc. do not represent a cost effective use of resources in a poor country. Effectiveness of interventions varies depending upon the health status of the community itself, and what is effective in one country need not be effective elsewhere. Mosley makes the point that in many less developed countries, only 20-25% of children born survive upto five years, and many of them die of diseases which are preventable with available health technology[49]. Two kinds of interventions can be taken at the community level: curative institutions and low cost technologies of prevention. He asserts that both these are heavily supply oriented, and a proper understanding of why people do not utilize available health technologies has to be gained before we can suggest solutions.

The major recent attempt at synthesizing social science and biomedical approaches to child survival determinants has been by Mosley and Chen[50]. They identify five sets of proximate determinants of child health status through which all other

influences act:

(1) maternal factors: age, parity, birth interval,

(2) environmental factors: air, food, water, finger/skin, soil, flies

(3) nutrition: calories, protein, micronutrients

(4) injury: accidental or intentional

(5) personal illness control: preventive or curative

Technology in this framework, is seen to play the role of making more effective the use of these factors. Thus in this framework, child morbidity is a chronic process, which is deter mined by the dynamic interaction of these factors. Mortality is seen as one end of a spectrum of morbidity.

It is important to realize that these theoretical schemata bring us further in our understanding of disease in society. Here disease is seen not merely as a biological phenomenon, amenable to technical solutions, but as the ultimate product of the inter-action of a series of socioeconomic and biological factors. And it is also important to realise that the same socioeconomic factors which define morbidity patterns, also limits the solutions that are open to us. Unless this fact is remembered, our understanding

of disease as a social reality is bound to be incomplete.

10. The present study:

The central hypothesis that the present study proposes
to examine, with respect to Kerala, is this: more favourable
social conditions like better levels of womens' education, by
making for a better utilization of the health services sector, in
effect contribute to reducing the deprivation in living conditions
that is characteristic of extreme poverty: this is reflected in
the better child health status. It is attempted within the analy-
tical frameworks which have been discussed: by doing so it
is hoped that the study would be able to go beyond earlier
attempts at delineating the causes of Kerala's better child health
status.

Two points have to be clarified at this stage. First
the study proposes to examine the Kerala situation only with
reference to the modern medical system. Eventhough Kerala is
characterised by the people's usage of several systems of medical
care, the major chunk of government investment in medical care
goes to the modern medical sector, as we shall see. Moreover,
if it is to be acknowledged that medical technology had a role
in bringing down the infant mortality rate in the state, this is

attributable mostly to the modern medical sector.

Second, there is no attempt here to evaluate the efficiency of the medical care sector. Efficiency could be defined in terms of getting the same outputs - as improvements in health - for less inputs, or getting greater outputs per unit of input. In the case of the health care sector, efficiency choices between alternatives in investment should take into consideration three pairs of alternatives: (1) between modern medical sector and traditional systems, (2) between medical care as such and promotive and preventive measures like water supply and sanitation, anu (3) among various ways of organising health care. There is no attempt here to go into these questions, though their pertinence is acknowledged. What is attempted is to probe, assuming that modern health care facilities have contributed to betterment of child survival figures in the state, how far certain socioeconomic preconditions have sensitized the community to the use of these facilities: and how far this in turn has helped them to overcome some of the deprivations imposed by poverty.

To examine even this limited question in detail would be beyond the scope of a study of present nature. But micro studies of this kind yield greater insights into the various aspects

which have a bearing on child health than data from statewide surveys, which, though lending themselves to some generalisations, are not detailed enough.

CHILD SURVIVAL STATUS IN KERALA

1. Introduction:

Kerala occupies a special position among the Indian states in many respects. With 1.2% of the country's area, Kerala houses 3.5% of the total population of India. Kerala has thus the greatest density of population among the Indian states, and among the greatest anywhere in the world. Kerala is also characterised by certain unique demographic features: the lowest birth and death rates in India, a sex ratio in favour of females, (the only state in the country to have this feature), and the longest expectation of life at birth for both males and females in the country. It has also the lowest population growth rate in India (Table 2.1).

But of more direct relevence to the present study is the high levels of child survival in Kerala. According to recent estimates, Kerala has the lowest Infant Mortality Rate in the country, both in the rural and urban areas. These figures are also among the lowest in the less developed areas of the world.

Other statistics relating to child survival also show Kerala in a favourable light, such as death rates in 0-4, 5-9 and 10-14 age groups (Table 2.1). These have been achieved in spite of the fact that the state has a per capita income among the lowest in India[1], and a per capita average daily calorie consumption which is also the lowest in India[2]. Thus Kerala has pursued her own path to what can be called "unusually low mortality". The attempt here is to examine this path in some detail, with special reference to child mortality.

Social scientists have not been indifferent to this question of why Kerala has achieved such impressive gains in child survival ratios. In trying to explain this phenomenon, they have emphasized several aspects of Kerala's social structure, and organisation of welfare measures. In this chapter, we shall examine some of these arguments and the evidence for and against them. We shall also attempt to show why such hypotheses which have been formulated in the light of the 'macro' statistics available, leave certain lacunae which can be filled up only by undertaking field studies.

2. <u>Historical</u>

Infant mortality rates for the whole of India were very

high at the turn of the century. From a figure of more than 200, it had a steady decline, though slow, and reached a figure around 110 in 1981[3]. This is still a high figure, though Caldwell places India among the superior health achievers, after comparing the infant mortality rankings and per capita income rankings of developing countries[4].

It is difficult to say when the region that comprises Kerala today began to exhibit the distinct characteristics in health indices which mark it from the other states in India. Caldwell traces the steady gain in life expectancy in Kerala from 26 years in 1916 to 49 years at 1956, then a 'breakthrough' period of fifteen years from 1956-1971, when 12 years were gained in life expectancy, (61), and the period 1971-1982, when the total gain was 5 years (66). The crude death rates in the regions of Travancore Cochin and Malabar, which later constituted the state of Kerala, were considerably lower than the all India figure (Tables 2.2, 2,3). After the formation of Kerala State, in 1957, the state wise statistics for Infant Mortality Rates, showed that Kerala already had the lowest figure in 1958-'59, 1978 and 1981 (Table 2.4). Thus it would be reasonable to conclude that the regions which later were to form the Kerala State had already acquired certain features which were conducive to better child survival, and that these characteristics became much more accentuated in the years hence.

3. The role of women

One important attribute of Kerala society which has been identified as being a major contributory factor in better child survival rates has been the greater autonomy that Kerala's women are supposed to enjoy, compared to women from other parts of India, and perhaps other parts of the developing world. This has been partly attributed to the fact that a large proportion of Kerala population has been traditionally matrilineal, where the inheritance of wealth is from the mother's side. This gives an importance to the female offspring which is not to be expected in a patrilineal society. This hypothesis, that since inheritance follows on the mother's side, women were more free to make decisions about their life, is perhaps an oversimplification[5],[6]. Though perhaps Kerala women were traditionally held in high esteem, there have been doubts on the decision making power that they have actually enjoyed in the home.

But women do enjoy a better quality of life in general in Kerala when compared to the rest of India. This is reflected in many statistics relating to women in Kerala (Table 2.5). The level of female literacy, as well as the proportion of girls going

to school in the appropriate age group, are the highest in India. The male - female and urban - rural differences in these statistics are also the lowest in Kerala among the Indian states. The mean age of marriage for girls in Kerala is higher than the rest of India. This can be partly attributed to the fact that girls tend to remain in school for longer periods, and it also has a direct bearing on child survival ratios, as we shall see later. The proportion of women employees in the organised sector is also the highest in Kerala among the Indian states. The better living conditions of women in Kerala is reflected in their longer life expectancy, and the more favourable sex ratio.

How does a better position for females in society translate into better health status for children? There are many ways in which this could be brought about:

1) Better position of women in the home, with greater authority and participation in decision making, means a greater share of the resources would be spent for the children; for their food, education and health care. This is because in a situation where resources are scarce, women are more likely than men to put the need of children first.

2) Greater autonomy for women also means that the working or professional woman is held in greater esteem. Thus in rural settings it is not difficult to find female health workers and nurses from the same community, who will enjoy greater trust and confidence of the local people. It is not difficult to see how this can mean greater health care for the females and children in the locality.

3) The better position of women also means that they will be less reluctant about taking decisions which have a crucial bearing on their own and their children's health. These include actions which have a direct bearing on health, such as greater utilization of health service facilities, as well as those with an indirect bearing on health, such as later age of marriage fewer number of children etc. These facts are borne out by the data presented later in the thesis.

4. Radical and egalitarian politics

The part played by radical and egalitarian social and political movements in shaping the behaviour patterns of Kerala society is another aspect that should draw our attention. Social

movements in Kerala starting from the 19th century, such as the movement led by the great social reformer and religious teacher, Sri Narayana Guru, have always emphasized equality of opportunity for people from all strata of society, and removal of the barriers of caste and community. In the twentieth century, the freedom movement in the state, though part of the mainstream of the Indian independence movement, had a strong a radical and leftist section in its ranks.This section later emerged into the powerful leftist movement in the state, which captured the majority of seats in the legislature in the first elections to the newly formed legislative assembly in 1957. Leftist and radical ideologies, continue to have a considerable following in the state. These parties have stressed and fought for the right of the people to such basic amenities like education, health, etc, and this tended to influence the policies of the governments in power. More important, this has made the people aware of their rights and with it, willing to fight for these rights. Thus Mencher is right when she says that "in Kerala if a PHC were unmanned for a few days, there would be massive demonstrations at the nearest collectorate led by the local leftists, who would demand to be given what they knew entitled to"[7]. This has also the effect of making the rural

people less inhibited about using the existing health infrastructure, and this is reflected in the increased rate of utilization of health care facilities. This is reflected in such statistics as the number of children being born in hospital, which is the greatest proportion in Kerala among the Indian states, even in the rural areas. Apart from this direct effect on health, the influence of radical ideology can be seen behind a series of government initiatives which have their indirect spinoffs in health, such as an efficient public distribution system, noon meal and other supplementary nutrition progrgislation, the scheme for giving pension to agricultural labourers, unemployment compensation etc.

5. Emphasis on education and health

Traditionally, Kerala society has placed great emphasis on education and health. The princely states of Travancore and Cochin had made primary education free of cost even as early as 1817. There were also a great number of missionary schools in the state established in the nineteenth and early twentieth centuries. The Ayurvedic system of medicine had strong traditions in Kerala, with its emphasis on the right ways of living. In addtion, the governments of the erstwhile states of Travancore

and Cochin also were in the forefront among the Indian states in providing the benefis of modern medical care such as hospitals clinics and immunisation care to the people

This traditional emphasis on education and health care, along with the dominant political ideology which favoured the rights of everyone to these, has resulted in large spending on these two sectors in the government budgets. Education has always been the top item of expenditure in Kerala state budgets, (See Appendix, Table 1) with health also having a fair proportion (See footnote 1).

One other point to be stressed is the distribution of Gove rnment expenditure in the respective fields. In education, great emphasis is placed on primary education (Table2.6) and in health, spending on water supply, sanitation and public health measures is also given importance along with the curative institutions. In fact, there was a great drive towards provision of drinking water to villages after 1975 (footnote 2). So the distribution of resources is made in such a way that, the bias towards urban areas, while still present, is considerably less than in other parts of India. This has been reflected in the statistics relating

to these (Table2.7). The rural urban differences in total literacy rate, female literacy rate, proportion of schoolage children attending school, and the proportion of female schoolage children attending school, are the smallest in Kerala among the Indian states. There is also a very favourable doctor population ratio and bed population ratio, and the provision of health care facilities in rural areas is considerably better than in other parts of India. The demand for education and health from the people has also resulted in a thriving private sector in these two fields in the state, which has augmented the government facilities.

The influence of these factors in improving child health status is manifold. Education, especially of women makes them confident in demanding their due share of health care facilities and in utilizing them. This demand boost is complemented by the supply of health care facilities by the government, which are free at the point of delivery. There is thus a greater utilization of health care facilities, as can be seen from the various statistics (See Appendix 1, Table 2).

6.The need for further research

We have reviewed, though briefly, how several factors have been identified as having important contributory effect on

the improving child survival ratios in Kerala, as compared to the rest of India. It can also be said that all these factors are closely interlinked. Thus education reinforces the demand for health care, and the prevailing ideology of equality of opportunity means that these facilities are more equitably shared. The greater female autonomy is complemented by female education.

But from these macro standpoints, it is not clear how these socio economic factors finally determine child survival status in a rural setting. The question of how socioeconomic variables finally determine child mortality or morbidity, which are biological phenomena, is still far from clear. 'The proximate determinants of child survival', as identified by Chen and Mosley,[8] and their role in the particular setting of Kerala, still need to be studied. The dynamics of the relationships between these variables will yield valuable lessons not only for less developed communities which have failed to achieve low child mortality status, but also to Kerala in further identifying areas where appropriate action will result in bettering child survival and health status. This could be attempted by studying a typical Kerala village in detail with reference to the socioeconomic caracteristics which are conducive to child survival. This is what the author has tried to do in the village Nattika, due emphasis being given to the influences which have been identified here, such as education, the role of the female in informing attitudes and decisions,

health care facility utilization, and the like. The village survey was undertaken to try and find answers to the following questions:

1. What are the socioeconomic influences which contribute to better child survival potential at the village level in Kerala, and what are their interrelationships;

2. Which are the proximate biological determinants through which these influences act; where are the areas where further improvements could be made;

3. In the already improved environment for child survival in the rural situation in Kerala, whether factors such as income, caste, community or occupation can account for further and finer differences between groups.

Footnotes

Note on the government expenditure on health in Kerala: Panikar and Soman have pointed out that between 1957-58 and 1980-81, health care expenditure of the government of Kerala registered an annual growth rate (compound) of 13.04% compared to 12.45% and 9.81% in respect to the grand total of state government

expenditure and state domestic product. (Panikar P G K and Soman C R: Health Status of Kerala, the Paradox of Economic Backwardness and Health Development, Centre for Development Studies, Trivandrum, 1984 p91.) Share of health sector in government expenditure in Kerala was 7.6% in 1984'85 and 7.4% in 1985'86 respectively, with 89.06% of the total expenditure going to the modern medical sector and 8.48% to Ayurveda in 1985'86. The per capita government expenditure on health in Kerala came to Rs.32.73 in 1984'85 and Rs 37.89 in 1986'87, higher than the all states average. (Economic Review 1986 p 73.) The government expenditure on health as part of total government expenditure compares well with most developing countries: Sri Lanka 5.1%, Pakistan 1%, Singapore 6.4%, Kuwait 6.2% U A E 7.7%, except Costa Rica 22.5%. But most developed countries spend considerably more on health as part of government expenditure : Italy 11.5%, F R G 18.6% Switzerland 13.4%, and USA 10.7% (World Development Report 1986: Oxford University Press 1986 Annex Table 22, p 222.)

2. Note on water supply, sanitation and immunisation:

Water supply programs in the state gained momentum with the introduction of the 100% Centrally Sponsored Accelerated Rural Water Supply Program from 1977'78, and inclusion of the scheme Supply of Drinking Water to Problem Villages in the New Twenty Point Programme. Official statistics claim that safe drinking water is available to over 80% of the urban and 50% of the rural population (Economic review 1985. p 72).. Panikar points out that by one estimate, the coverage of rural population with safe drinking water is poor in Kerala compared to all states average, and given the modest allocation of funds, unlikely to improve:

(though there is no conclusive evidence that this is crucial in improving child survival potential). (Panikar P G K Health Care System in Kerala and its Impact on Infant Mortality, in Halstead et al ed . "Good Health At LowCost:" Proceedings of a conference held at Bellagio, Italy. Rockefeller foundation 1985.)

As regards the role of immunisation in reducing infant mortality in Kerala, Krishnan is of the opinion that the spread of vaccination was an important contributory factor in bringing down the mortality rates of children and infants in Kerala during the period 1956-'66. (Krishnan T N : Health Statistics in Kerala, in Halstead et al ed. op cit.) But the results of two surveys on immunisation coverage, the Survey of Infant and Child Deaths by the Registrar General in 1979, and the data from the assessment surveys sponsored by the Expanded Program of Immunisation section, Ministry of Health and family Welfare, Government of India, (The Expanded Program of Immunisation - a Review 1982 p34), do not show that Kerala had particularly impressive immunisation coverage when compared to the rest of India.

TABLE 2.1: SOME SELECTED INDICATORS, KERALA AND INDIA

ITEM	UNIT	REFERENCE PERIOD	KERALA	INDIA
1. Area	1000 km^2	1981	39* (1.2)	3287
2. Population	Lakhs	1981	255* (3.7)	6852
3. Decadal increase in population	percentage	1971-1981	19.2	25.0
4. Density of population	Persons per sq. km	1981	655	216
5. Birth rate a. Total b. Rural c. Urban	Births per 1000 population	1983	a 24.9 b 24.9 c 24.6	a 33.6 b 35.3 c 28.0
6. Death rate a. Total b. Rural c. Urban	Deaths per 1000 population	1983	a 6.7 b 6.7 c 6.7	a 11.9 b 13.0 c 7.7
7. Infant Mortality Rate a. Total b. Rural c. Urban	Deaths under 1 year of age per 1000 live births per year	1983	a 33 b 35 c 26	a 105 b 114 c 66
8. Age specific Death Rates: a 0-4 b 5-9 c 10-14	Deaths in specified age groups per 1000 population per year	1983	a 11.89 b 1.2 c 0.7	a 37.6 b 3.3 c 1.7

TABLE 2.1:   SOME SELECTED INDICATORS: KERALA AND INDIA

ITEM	UNIT	REFERENCE PERIOD	KERALA	INDIA
9. Expectation of life at birth a person b male c female	Years	1983	a 66.7 b 64.7 c 69.0	a 54.4 b 54.1 c 54.7
10. Sex Ratio	Females per 1000 males	1983	1032	934

Sources: (1) Government of Kerala, Trivandrum
             1985 "Women in Kerala", Published
             by the Department of Economics and
             Statistics.

         (2) Sample Registration Bulletin
             Vol. XX No.1, June 1986

* Figures in brackets indicate percentages - Kerala/India.

TABLE 2.2   CRUDE DEATHRATES: KERALA AND INDIA

KERALA		INDIA	
PERIOD	CRUDE D.R.	PERIOD	CRUDE D.R.
1911 - 20	20.1*	1911 - 21	47.2
1921 - 30	14.5*	1921 - 31	36.3
1931 - 40	25.0	1931 - 41	31.2
1941 - 50	20.0	1941 - 51	27.4
1951 - 60	16.1	1951 - 61	22.8

* Vital Statistics data

  Other figures are census data

Sources: 1. Demographic Research Centre, Bureau of Economics
             and Statistics. Demographic Report of Kerala
             1901-'61. Government of Kerala, Trivandrum 1976, p 36

          2. L. Ramkumar, PS Gopinathan Nair and S. Sthanukrishna
             Iyer, Statement on the population of Kerala,
             Trivandrum 1974 p 2.

          3. Ministry of Welfare, Government of India,
             New Delhi 1985: The Child in India - a statistical
             profile p 87.

TABLE 2.3: INTERCENSAL RATES OF POPULATION INCREASE IN
KERALA AND INDIA 1901 - 1981:

Percentage Rate of Increase

1901 - 11	11.75	5.73
1911 - 21	9.16	0.31
1921 - 31	21.85	11.01
1931 - 41	16.04	14.22
1941 - 51	24.76	13.31
1951 - 61	24.76	21.50
1961 - 71	25.89	24.50
1971 - 81	19.2	25.0

Sources: (1) Kerala - Census of India 1971 Series 9
Kerala Provisional Population Totals
Paper 1 of 1971 p4

(2) India - Census of India 1961 Paper No. 1 of 1962

(3) 1971-81 Figures. Government of Kerala,
Trivandrum 1985. Bureau of Economics
and Statistics: Women in Kerala.

TABLE 2.4   INFANT MORTALITY RATES – KERALA AND INDIA

KERALA		INDIA	
PERIOD	IMR	PERIOD	IMR
July 1958 – [a] June 1959 (Rural)	88.86	July 1958 – [a] June 1959 (Rural)	145.86 **145.86**
June 1964 – [b] June 1965	55.26	July 1964 [b] June 1965	114.50
1971 – 73 [c]	58	1971–73 [c]	134
1976 – 78 [c]	48	1976 – 78 [c]	129
1981 [d]	37	1981 [d]	110

Sources: (a)   NSS 14th Round

        (b)   NSS 19th Round

        (c)   Sample Registration System 1976-78 p 22-23

        (d)   Ministry of Welfare, Government of India 1985 The Child in India, a statistical Profile p 154

TABLE 2.5   SELECTED INDICATORS OF WOMEN'S STATUS
KERALA AND INDIA

ITEM	UNIT	PERIOD OF REFERENCE	KERALA	INDIA
SEX RATIO	FEMALES/ 1000 MALES	1981	1032	934
LITERACY	Percentage (females)	1981	65.7	24.8
EXPECTATION OF LIFT AT BIRTH	YEARS - (females)	1981	69.0	54.7
MEAN AGE AT MARRIAGE	YEARS (females)	1981	21.0	18.7
% MARRIED FEMALES IN AGE GROUP	Percentage	1981		
15 - 19			14.0	43.5
20 - 24			57.7	88.4
EMPLOYMENT IN THE ORGANIZED SECTOR	Total (lacs)	June '83	10.6	240.0
	Women		3.7	30.3
	%Women		35.0	12.6
PERCENTAGE OF GIRLS ATTENDING SCHOOL, BY AOE	Percentage			
5 - 9		1981 (census)	75.06	32.21
10 - 14			83.97	37.47

Sources (1) Government of Kerala, Department of Economics
             and Statistics, Trivandrum, 1985 - "Women in
             Kerala"

        (2) Ministry of Welfare, Government of India 1985
             The Child in India, a statistical profile,
             p 240.

TABLE 2.6   EXPENDITURE ON EDUCATION − DISTRIBUTION
BETWEEN PRIMARY AND SECONDARY EDUCATION

		Budget Expenditure on Education: Rs. 000's		
		1980−81 (Actuals)	1981−82 (RE)	1982−83 (BE)
All States (Total)				
1.	Total	3,15,03,929	3,64,66,269	3,99,75,115
2.	Elementary	1,52,83,088	72,32,847	1,93,50,982
3.	Percentage (2/1)	48.51	19.83	48.41
KERALA				
1.	Total	21,09,852	24,65,518	26,74,867
2.	Elementary	11,49,380	13,44,673	14,65,377
3	Percentage (2/1)	54.48	54.54	54.78

Source: Ministry of Welfare, Government of India,
New Delhi 1985. The Child in India: a
statistical profile p 402.

TABLE 2.7 RURAL – URBAN DIFFERENCES IN LITERACY AND
EDUCATION: KERALA AND INDIA (census 1981)

	KERALA		INDIA	
	Urban	Rural	Urban	Rural
1. Literacy rate for age 10 and above				
Person	86.53	79.67	67.23	35.84
Male	92.05	86.69	77.31	50.08
female	81.21	73.01	55.48	20.86
2. Proportion (percentage) of children going to school in age group 5 - 9				
Person	79.05	74.26	58.69	32.95
Male	79.30	74.24	61.65	39.63
Female	78.79	74.27	55.55	25.83
3. Proportion(percentage) of children going to school in age group 10 - 14				
Person	88.66	85.37	71.58	44.27
Male	89.40	87.57	77.00	57.75
Female	87.89	83.12	65.60	29.18

Source: Ministry of Welfare, Government of India,
New Delhi 1985. "The Child in India – statistical
profile" p 240

TABLE 2.8 HEALTH INFRASTRUCTURE THE RURAL AREAS –
GOVERNMENT INSTITUTIONS, IN KERALA AND
ALL INDIA

		KERALA	ALL INDIA
1.	Doctors in Rural Institutions	991/991 (100% of posts occupied)	22,944/25,652 (89.44% of posts occupied)
2.	Doctor/1000 rural population	0.046	0.041
3.	Beds in Rural Hospitals and Dispensaries	23,285	93,510
4.	Beds/1000 Rural population	1.075*	0.1680*
5.	Total beds in Urban Institutions	21,492	4,42,860
6.	Ratio of Urban/Rural beds	0.96	4.74

* Rough estimate

Computed from data given in

1. Health Statistics of India 1984

2. Ministry of Welfare, Government of India, New Delhi 1985 "The Child in India – statistical profile".

CHAPTER III

VILLAGE CHARACTERISTICS IN GENERAL- NATTIKA VILLAGE

1. Introduction:

The village chosen for the survey was Nattika, a typical coastal village in the taluk Chavakkad, in Trichur district, in central Kerala. The data were taken from two sources:

1. The preliminary survey report of the Integrated Child Development Services schemne of the Government of India for village Nattika, June 1986. The ICDS is a central government scheme of package services for childrten which is implemented in a large number of Kerala villages. The preliminary survey covered each household in the village and collected all demographic particulars, besides other information related to women and children. A preliminary health and nutrition survey of the women and children was also conducted, to assess the health status of the vulnerable sections of the population; as well as to select the beneficiaries of the programme.

2. Another benchmark was conducted by COSTFORD, the Centre for Science and Technology for Rural Development, which is a non governmental rural development agency working in the area. The COSTFORD survey covered 1873 of the 3118 households, (58.9%) and it collected information on certain aspects which

are of interest to our study, like the exposure to communications media, the use of boiled water, sanitary latrines, consumption of high quality foodstuffs like eggs and meat etc.

Though these two surveys were limited in scope in terms of the information they yielded, the coverage in terms of sample size was large. The analysis of these data provides the foundation on which the design for the detailed household survey is built.

2. Geographic and demographic particulars

The village Nattika has a population of 18,147 according to the ICDS preliminary survey, distributed among 3118 households, with an average size of 5.82 per household. The area of the village is 960.1628 hectares. The demographic particulars of the village are compared with those of the whole of the state in Table 3.1. 17.84% (3238) of the population of the village belonged to the scheduled castes and tribes, generally acknowledged to be the most economically and socially backward communities. The sex ratio, the number of females per 1000 males in the population, is 1079; and in this the village shares the unique demographic feature of the state in having a sex ratio in favour of females. The population of children from 6 months to 6 years of age, who are the beneficiaries of most of the

nutrition and health programmes of the government, constitute 10% (1831) of the total. This is almost identical to the Kerala average.

But in those indices relating to fertility, it is seen that this village exhibits certain distinct features. For instance, the child woman ratio at Nattika, defined as the number of children 0-4 years per thousand females of age 15-49 years, is estimated at 360, which is significantly below the state average, viz., 409, not to speak of the national average, viz., 546. True, the child woman ratio is only a crude index of the rate of population increase. For the village the general fertility rate, (ie., the number of births in the past year per 1000 females of age 15-49 years), and the crude birth rate, (ie., the number of births per 1000 population in the reference year) are also seen to be much below the state average (see Table 3.1).

Thus it would appear that the rate of population increase has slowed down in Nattika. Before we speculate on the reasons for this, it should be considered whether the rates could be spurious, due to under reporting in the survey. This seems unlikely, since the ICDS is a comprehensive health programme of the government, the beneficiaries of which are selected from this survey. Also if we look at the proportion of population below 15 years in the village it is seen that this is only 24.76%

as compared to 35.01% for Kerala, and 39.54% for India as a whole. This indicates that the slowing down of the race of population increase Nattika is not of very recent origin. To offer a comprehensive explanation for this would call for a close scrutiny of the determinants of the fertility decline in Nattika, which is beyond the scope of the present study. One plausible explanation that one can offer tentatively is that the migration to the gulf countries of large numbers of young men in search of lucrative jobs, most of them leaving behind their young spouses, might have had the effect of spacing out the births in these families, eventhough the marital fertility might not have been affected to a great extent. Needless to say, it is doubtful if this alone can capture fully the factors underlying the phenomenon.

3.   General characteristics of the village households

Of the total number of households in the COSTFORD survey, the great majority belonged to the Hindu backward castes, (72.88%), including the scheduled caste and scheduled tribes (17.84%). Other Hindu communities constituted 9.24% of the households, Muslims 12.97% and Christians 3.99% (Table 3.2). Among the Hindu backward communities, by far the largest proportion were Ezhavas.

32,32% of the households derived their income mainly

from cultivating their own fields or from other self employment: 34.72% depended on casual labour, mostly in agriculture, and 19.39% for salaried employment, mostly in government institutions and in some private institutions. 13.57% of the households depended on remittances from a family member employed abroad as the main source of income (Table 3.3).

37.90% of the households had less than 10 cents of land whereas 4.59% hts 2 acres or more. The important crops grown were coconut, arecanut and paddy, 97.76% of the households cultivated coconut palms. According to the ICDS preliminary survey which covered all the households, 64.16% had an annual income between Rs.1800-5000, and 30.93%, below Rs 1800. Hardly 5% had an income over Rs 5000. Thus the general picture of the village that emerges is one of poverty and backwardness, with most of the families eking out a subsistence income from their small holdings or as wage labourers, and a few pockets of prosperity mostly due to the remittances from abroad sent by family members employed abroad. It may be noted that inspite of such poverty, the mortality and fertility rates as seen from the earlier table, reflect a better record of achievement than the all India averages: in this, the village more or less confirms to the Kerala pattern.

Details on other living conditions were collected by the COSTFORD survey. Thus, 30.06% of the houses were having a

thatched roof, and 17.51%, pucca roofing, and 51.95% had tiled roofs. 51.74% of the houses were electrified. More than two thirds of the households used water from a well, (69.83%), either their own, or a common well. More than one fifth of them (21.25%) used handpumps to draw water for domestic purposes, and 5.66%, taps (Table 3.7).

The COSTFORD survey also gauged the households' exposure to communications media. It was found that 36.04% of the households subscribed to newspapers. Presumably, a greater poercentage read them daily, either at the local libraries or even at shops. But the most popular communications medium is the radio: more than three fourths (78.43%) of the households had a radio.

4. Educational institutions and health care facilities:

In the previous chapter, we have seen how Kerala's development has been characterised by a large investment by the government in education and health sectors, how this is distributed with much less urban rural bias than in other states, and how those are also supplemented by the private sector. The educational and health care facilities in Nattika village also confirm to this pattern. There are five upper primary schools, four lower primary schools, and one high school in the village, catering to a population of about 2700 in the age group 5-15 years. There is also one first grade college - the Sree Narayana College, Nattika, and one poly technic- the Sree Rama Polytechnic - in the area.

There is one government rural dispensary within the perimeter of the village which is to be immediately upgraded as a primary health centre with ten beds and three medical officers. There is also one private hospital in the area, besides six private practitioners of modern medicine, three Ayurvedic practitioners, and two homoeopaths to cater to the health care demands of the population. Thus the doctor-population ratio would work out to be 2016, taking into consideration the practitioners of modern medicine only. The bed-population ratio is around 1815, taking into account only those beds in the government institution. Besides all these, there are two government hospitals within one kilometer from the boundary of the village, which are easily accessible to the peoplle, and greatly utilised by them.

The Integrated Child Development Services Scheme, a scheme initiated by the central government and supported by state government also, has started functioning in the area. One ICDS scheme serves around one lakh population, and through its units called anganvadis, provides pre-school non formal education, health checkup, and supplementary nutrition to pre-school children and selected expectant mothers.

5. <u>Health and nutritional status of children</u>

To concentrate on our theme of identifying the correlates of increased child survival potential in the village, it was necessary to have an assessment of the health status of the pre-school population. Health status could be assessed in a number of ways, three of which are commonly used in community studies:

1. Morbidity survey: ideally this should cover a sample of the population for one year, recording the episodes of illnesses, disabilities, assessing their severity and duration, with atmost a fifteen days' recall. This method could not be used in this study.

2. Assessing the weight and height of the children and comparing these with the expected that normal levels for the age and sex. Nutritional status is a very good one point assessment of the health status in children because of the intimate two way relationship between nutrition and health or under nutrition illness. Moreover, measuring both weight and height gives us an idea of the type of environmental deprivation, whether it is of acute, devastating nature, or of chronic, insiduous nature, depending upon whether stunting or wasting is more prevalent in the pre-school population (the details of these interrelationships are discussed in a later chapter).

3.   Assessing the weights of children at one point in time and comparing with the expected normals for age and sex.   This has the advantage of being much simpler, and more easily done, without the need for sophisticated equipment or highly trained personnel.

We have used the data from the ICDS preliminary survey on the nutritional status of pre-school children in Nattika for an assessment of the health status of the children.   This survey has taken into consideration only the weights, using Salter scales, as is the practice prescribed for ICDS surveys all over the country.   The weight values are compared against the standards for the age and sex suggested in the ICDS weight charts, which are prepared by experts, taking into consideration international and Indian standards.   The ICDS nutritional survey, which is expected to cover all the pre-school population in the village, has actually covered 1562 out of 1831 children (85.31%).   According-ing to their weights, the children are classified thus:

:

Normal   : 80-100% of expected weight for age

Grade I malnutrition   : 70-90% expected weight for age

Grade II malnutrition   : 60-69% of expected weight for age

Grade III malnutrition   : 50-59% of expected weight for age

Grade IV malnutrition   : Below 50% of expected weight for age

Of these, grades III and IV are indicative of severe forms of malnutrition, grade II of moderate, and grade I of mild malnutrition. Children belonging to grades III and IV are considered as needing immediate intervention. From the ICDS preliminary survey data (Table 3.9), it is seen that 78.23% of the under-five population were either nutritionally normal or only mildly malnourished. Severe forms of malnutrition accounted for 2.36% of the population, and there was only one child (0.06%) who was having grade IV malnutrition. Eventhough it can be argued that a one point assessment of nutritional status by weight cannot give a total picture of the health status of the population under-five, there is convincing evidence that risk of mortality in underdeveloped communities among pre-school children significantly goes up once a child falls into the category of severe malnutrition by weight, whereas the differences in mortality risks between normal, mild and moderate forms of malnutrition are insignificant. Thus it would seem that in the community under study, the risk of mortality in under-five children is insignificant.

6. Correlates of health status

In an attempt to proble some of the known correlates of improved child survival status, the data from the COSTFORD survey was analysed, which covered 1873 out of the 3118 households (58.9%). Ideally, a diet survey to assess the average calorie and protein intake of the households would have yielded much interesting information relating to food which is recognized as an important input into health even by the people themselves, as we shall see later. In the absence of this information, the data on regular consumption of high quality protein foods was looked into (Table 2.10). Though protein energy malnutrition is considered primarily a disease of calorie inadequacy and not of protein, protein foodstuffs like egg, milk, fish and meat, being generally more expensive, their consumption would give us some idea of the spending on food. It is seen that the only foodstuff which is taken with regularity in most households, is fish (96.21%). Milk, which is generally used as a supplementary food to children, was taken by 37.48%, egg and meat by 20.66% and 23.55% respectively.Apparently, the average per household expenditure on food in the village is moderate, and consequently, the average per capita consumption of calories would be comparatively low. The average per capita consumption of calories and protein in our sample village seems to fall in line with the state averages which is the lowest in India. The fact that in spite of this, the manifest forms of severe

malnutrition constitute less than 1% should deserve special mention. This is demonstrative of the fact that nutritional status is not merely the consequent effect of calorie and protein intake, but a combined effect of the synergism of nutritional intake, infections, and other environmental factors. The explanatiion for this observation could be that Keralites, by their increased use of infrastructural facilities in health, and preventive and protective measures, reduce the 'erosion' of calories induced by infections and environmental depriviation. This is also borne out by other data on incidence of malnutrition in Kerala, which show that inspite of low average consumption of calories and proteins, Kerala has the lowest incidence of severe forms of malnutrition.

Some of the living practices related to health were also looked into by the COSTFORD survey. Table 3.7 shows the source of drinking water in the households. Accordingly, the majority of households used wells as a source of drinking water (69.83%), followed by hand pumps (21.25%), and taps (5.66%). Ponds and streams which were much more open to contamination, were used by only about 3% of people. But on the other hand, only 24.19% of the households used boiled water for drinking (Table 3.11). Thus the presumption that in Kerala the practice of boiling the water before drinking contributes to better health of the children does not seems to be borne out by the village data.

Immunisation of pre-school children is an important input into their health, as this can protect them from some of the worst afflictions of childhood which can kill them or maime them for life. The importance of this has been recognized the world over, and accordingly, immunisation against six of the commonest diseases of childhood is one of the important components of the ICDS programme. The diseases covered under the Expanded Programme of Immunisation of the World Health Organisation are Diphtheria, Pertussis, Tetanus,. Tuberculosis, Poliomyelitis and Measles. The ICDS preliminary survey assesses the 'immunisation status of the target population of under-six children in the project area. Table 3.12 shows the results of this preliminary survey done in June 1986. It is seen that only 51.50% are immunised fully against poliomyelitis, 41.78% against diphtheria, pertussis and tetanus, and 43.75% against tuberculosis, and 16.55% against measles respectively. But on the other hand, of the 109 pergnant women in the survey village, 72(66%) had already taken protective immunisation against tetanus, and it cannot be ruled out that the rest would also get it before the time of their delivery. Protection of mothers with tetanus toxoid in the period of pregnancy is a very effective weapon against neonatal tetanus in underdeveloped communities. The fact that this measure is largely accepted in the village would account for a large number of neonatal deaths due to tetanus averted.

It is interesting to speculate what makes immunisation of pregnant mothers more acceptable whereas immunisation of children is not so acceptable. Perhaps tetanus immunisation of the mother is accepted as part of a package of antenatal services that are offered, whereas in the case of children, most often, they have to be taken to the hospital specifically for immunisation.

According to the COSTFORD survey, 36.68% of the households had a 'flush' type of latrine a not too low proportion in the rural setting. But since the questionnaire did not probe the question of whether children were encouraged to use these, the value of this observation may be less than what it seems.

The regular use of toilet soap is believed to have an inhibitory effect on the spread of many contagious diseases, and this can as such have a positive effect on the health of children. From data from the COSTFORD survey, it is seen that in 98% of households, toilet soap is regularly used, making it an almost universal practice.

The last set of tables, 3.13 and 3.14, relates to the regular use of medical facilities. It should be explained here that in these two tables, it is regular use that is looked into, and not preference. The implication of this point shall be dis-

cussed in a later chapter. From table 3.13, we see that 60% of the households use government facilities, and 40% use private medical care facilities. Considering the fact, which we have seen from the earlier tables, that most of the population belong to the poorer socioeconomic stratum, the figure of 40% using private medical facility is very significant. It reflects the following possibilities:

1. that the demand for different categories of medical care are increasing among the population, so that more and more households are willing to pay for this,

2. that the 'perceived' quality of care in the private sector is better than in the government sector, so that people, if they are able to pay for this, would go for private care;

3. that government facilities, eventhough free at the point of delivery, involve an opportunity cost which is perceived as greater than the cost of private medical care.

The last table sets out the systems of care that are in regular use. 98% of the households use modern medicine (allopathic) facilities regularly, with 1.33% using Ayurveda. A more detailed questionnaire would have brought out whether certain systems are selectively used for certain types of in-

firmity; but unfortunately this information is not available. It is not also clear whether the regular use of modern medical facilities by the great majority of the households is due to the fact that these are in greater supply, or because they perceive these to be more effective. The last two tables indicate that there is an increasing demand for modern medical care in the village.

7. Conclusions

In this chapter, we have looked at the village Nattika from the data available from two comprehensive surveys, the preliminary survey of the ICDS, and the COSTFORD survey. Though these were not designed as exclusive health surveys, they have yielded a wealth of information on the general demographic and other characteristics of the village, the nutritional profile of under-five children, and certain correlates of increased choild survival which have been identified. It has been seen that though in the village the majority of households belong to the backward communities, and the conventionally accepted indices of the 'standard of living' show it in a poor light, nevertheless the child survival indices and the nutritional status of children are comparatively good. This is perhaps because of the very good and easily available health care facilities which are present in the village and the use that the people make

of these. We also have seen that in certain areas of preventive and protective measure, like the use of boiled water for drinking, and immunisation of children, the community has a long way to go, and perhaps by improvement in these areas, the child survival potential could be further improved. With this general picture, we go into the survey of a subsample of the households in which some of the same questions are probed in much more detail, and others raised.

TABLE 3.1 DEMOGRAPHIC CHARACTERISTICS OF VILLAGE NATTIKA
COMPARISON WITH KERALA AND INDIA

CHARACTERISTICS	NATTIKA	KERALA	INDIA
(1) Percentrage of population 0-4 years	10.00	10.76	12.59
(2) Percentage of population below 15 years	24.76	35.01	39.54
(3) Sex Ratio (Females/1000 males)	1079	1032	984
(4) Child-Woman ratio (Children 0-4/1000 women 14-45 years)	360	409	546
(5) General Fertility Rate Births/1000 females aged 15-49)	52	101.7 (Rural)	144.9 (Rural)
(6) Crude Birth Rate	15	24.9	35.3 (Rural)
(7) Crude Death Rate		6.7	13.0 (Rural)
(8) Infant Mortality Rate	35	35	114

Sources: 1. Nattika: Preliminary survey of ICDS - June 1986 and Survey COSTFORD

2. Kerala and India: Government of India, Department of Economics and Statistics, 1985. "Women in Kerala".

3. Ministry of Welfare, Government of India, 1985 The Child in India, a statistical profile

4. Sample Registration Bulletin Vol.20 XX No.1 1986

TABLE 3.2 HOUSEHOLDS ACCORDING TO COMMUNITY _ VILLAGE NATTIKA

COMMUNITY	No.of Households	Percentage
1. Hindu Backward Communities	1365	72.88
(including Ezhavas,	(Ezhavas 756	40.36)
Scheduled Castes Scheduled Tribes)		
2. Other Hindus (including Nair)	173	9.24
3. Islam	243	12.97
4. Christian (Catholic)	74	3.95
TOTAL	1873	

Total Number of households in the village = 3118

Source: COSTFORD Survey

TABLE 3.3   OCCUPATIONAL CLASSES: VILLAGE NATTIKA

PRINCIPAL SOURCE OF INCOME OF HOUSEHOLD	NUMBER	PERCENTAGE
1. Cultivators and other self employed	605	32.32
2. Wage Labour	650	34.72
3. Salaried Employment	363	19.39
4. Remittance from abroad	254	13.57
TOTAL	18.72	

Total number of Households in the village: 3118

Source: COSTFORD Survey

TABLE   3.4   LAND OWNERSHIP OF HOUSEHOLDS: VILLAGE NATTIKA

OWNERSHIP CLASS OF HOUSEHOLD	NUMBER	PERCENTAGE
Less than 10 cents	661	37.90
10 - 25	295	16.92
25 - 50	286	16.40
50 - 100	249	14.28
100 - 200	173	9.92
More than 200 cents	80	4.59
More than 500 cents	8	0.46
TOTAL	1744	

Total number of households in the village 3118

Source: COSTFORD Survey

TABLE   3.5   IMPORTANT CROPS GROWN BY HOUSEHOLDS IN
                 VILLAGE NATTIKA

CROP GROWN BY HOUSEHOLDS	NUMBER OF HOUSEHOLDS	PERCENTAGE
Paddy	140	7.47
Coconut	1831	97.76
Arecanut	164	8.76
Cashewnut	92	4.91
Pepper	1	0.05
Total Number of households surveyed		

Source: COSTFORD Survey

TABLE   3.6   DISTRIBUTION OF FAMILIES ACCORDING TO
AVERAGE ANNUAL INCOME AS STATED

AVERAGE ANNUAL INCOME CLASS	NUMBER OF HOUSEHOLDS	PERCENTAGE
Below Rs.1800/-	1311	30.93
Between Rs.1800-5000	2719	64.16
Above Rs.5000	208	4.90

*Total number of families surveyed: 4238

*Note: Though the total number of households
in the village were, 3118, many households
contained more than one family unit.
        |Cn<
Source: ICDS. Preliminary Survey 1986

TABLE 3.7 SOURCE OF WATER FOR DOMESTIC PURPOSES IN THE VILLAGE NATTIKA

SOURCE OF DRINKING WATER	NUMBER OF HOUSEHOLDS	PERCENTAGE
Well	1308	67.83
Pond	54	2.88
Stream	2	0.10
Tap	106	5.66
Handpump	398	21.25

Total no. of households surveyed: 1873

Total no. of households in the village: 3118

Source: COSTFORD Survey

TABLE 3.8   EXPOSURE TO COMMUNICATIONS MEDIA –
            VILLAGE NATTIKA

Communications medium	No.of households	Percentage
1. Newspapers	675	36.04
2. Radio	1469	78.43
3. Television	43	2.29
Total houses surveyed	1873	

Total number of households in the village: 3118

Source: COSTFORD survey

TABLE 3.9 NUTRITIONAL STATUS OF CHILDREN BETWEEN 6 MONTHS
TO 6 YEARS. VILLAGE NATTIKA

NUTRITIONAL CLASS: WEIGHT FOR AGE	NUMBER	PERCENTAGE
Normal (- 80% wt./age)	475	30.41
Grade I Malnutrition 70-79%	747	47.82
Grade II Malnutrition 60-69%	303	19.40
Grade III Malnutrition	36	2.30
Grade IV Malnutrition	1	0.06
Total children surveyed	1562	100.00
Total number of children from 6 months - 6 years in the village	1831	

Source: ICDS Preliminary survey June 1986

TABLE 3.10   CONSUMPTION OF HIGH PROTEIN FOODS IN HOUSEHOLDS:
VILLAGE   NATTIKA

CATEGORY OF FOOD REGULARLY CONSUMED	NUMBER OF HOUSEHOLDS	PERCENTAGE
1. MILK	702	37.48
2. EGG	387	20.66
3. FISH	1802	96.21
4. MEAT	441	23.55
Total households surveyed	1873	

Total number of households in the village: 3118

Source: COSTFORD survey

TABLE 3.11   PRACTICE OF BOILING DRINKING WATER

Drinking water boiled or not	No.of households	Percentage
Boiled before use	453	24.19
Not boiled	1420	75.81
Total households surveyed	1873	

Total number of households in the village: 3118

Source: COSTFORD survey

TABLE 3.12   IMMUNISATION STATUS IN VILLAGE NATTIKA

IMMUNISATION	Target population	Size of target population surveyed		Number immunised	Percentage immunised
		Number	Percentage		
1. DPT Three doses	Children 6 months to 6 years	1831	100	765	41.78
2. Oral Polio vaccine three doses	" "	1831	100	943	51.50
3. BCG	" "	1831	100	801	43.75
4. Measles	" "	1831	100	303	16.55
5. Tetanus toxoid (at least 1 dose)	Pregnant mother	109	100	72	66.0

Source: ICDS Preliminary Survey June 1986

TABLE 3.13 REGULAR USE OF MEDICAL FACILITY – VILLAGE
NATTIKA GOVERNMENT/PRIVATE

TYPE OF FACILITY USED	NUMBER OF HOUSEHOLDS	PERCENTAGE
GOVERNMENT	1125	60.0
PRIVATE	748	40.0
Total no. of households surveyed	1873	

Total number of households in the village: 3118

Source: COSTFORD Survey

TABLE 3.14   REGULAR USE OF MEDICAL FACILITY _ VILLAGE
NATTIKA   SYSTEMS OF MEDICINE

SYSTEM OF MEDICINE	NUMBER OF HOUSEHOLDS	PERCENTAGE
MODERN MEDICINE	1837	98
HOMEOPATHY	" "	0.58
AYURVEDA	25	1.33
TOTAL NO. OF HOUSEHOLDS SURVEYED	1873	

Total number of households in the village: 3118

Source: COSTFORD Survey

CHAPTER IV

DETERMINANTS OF CHILD SURVIVAL : A CASE STUDY

1. Introduction:

Mosley and Chen in 1984 suggested a framework for studying the various influences on child mortality and morbidity[1]. According to them, there are three levels at which these influences act: the community, the household, and the individual. Most of the hypotheses purporting to explain Kerala's better child survival record, are formulated in terms of community level parameters like educational facilities, health infrastructure including the institutional deliveries, political environment favouring equitable distribution of health care etc. Some others, while taking into account house-hold level variables like maternal education and sanitary practices, have not attempted to make a quantitative measure or ordinal ranking of these variables.

The Mosley-Chen framework also suggests how socioeconomic factors influencing child survival potential act through a set of 'proximate determinants', those being: maternal factors, environmental factors, nutrient deficiency, injury, and personal illness control. Thus, it provides the possible patterns of interaction between socioeconomic and biological factors determining child survival. To our knowledge, there has been no specific study

of the Kerala situation in this framework.   This gap we have attempted to fill by conducting a household survey in the study area.

The objectives of the village household survey are:

1.   To examine how the community level variables which have a bearing on child survival, ultimately work at the household level;

2.   To study the interaction between socioeconomic and biological factors which influence the positive and negative inputs into child survival;

3.   To identify gaps in the present state of our knowledge about child survival in underdeveloped communities, formulate hyptheses, and suggest areas of further research.

Needless to say, no generalisation is warranted from the observation of a single village at one point of time. But while each village has its own characteristics, villages in Kerala have more in common with each other than with villages in the rest of India. This becomes important because it is the uniqueness of the Kerala situation that has caught our attention.

2. The sample and methodology

Of the 3118 households in the Nattika village, approximately 780 households formed the population of the study.   A ten percent sample of this, consisting of 78 households, was drawn at random

for the purpose of the study. The household was fixed as the unit of the study, and thus the sample formed about 2.5% of the total households in the village. The study was addressed to three broad questions.

1. Health status of the children: this was assessed mainly from the nutritional status of the children. The details of methodology are discussed in the relevent section.

2. Survey of practices relating to health: here the outcome measure studied was the behaviour pattern of the households which the investigator judged as having a positive or negative influence on child survival pattern. The independent variables studied were community, education, income, consumption pattern. This formed the major part of the village study.

3. Attitude testing of the mothers in the households: Under this, the attitudes of the mothers were studied with regard to some of the major influences on child survival which have been identified.

3. General characteristics of the sample:

The 78 households that were studied, had a population of 568, or 3.13% of the total population of the village. The average size of the households in the village as a whole is 5.82, as against 7.27 in the sample. The sample households had 131 children in the age group 6 months to 6 years, or 7.15% of the total number of children in the village in this age group. Children in the age

group 6 months to 6 years constituted 23.06% of the total population living in the sample households.

Table 4.1 shows the average age of mother, and the average number of children in the age group 6 months to 6 years per nuclear family unit, according to occupational class and community. For the sample households as a whole, these are 27.5 and 1.4 respectively. According to the 1981 census, the average number of children in rural Kerala for mothers in the age group 25-29 is 1.99[2]. Among the occupational classes, the wage labour families tended to have larger number of children, but the age of the mother in this group was higher than the mean. Among communities, the non Hindus tended to have larger families, in spite of the average age of the mother in this group being lower.

From the table on age of the mother and average number of children in the age group 6 months to 6 years according to mothers' education and community (Table 4.2), it is seen that for mothers who had ten years or more of schooling, the number of children was definitely smaller than for mothers who had less than ten years of schooling. But in non Hindu families, even this effect of education on lowering the number of children per family unit is not seen. This analysis indicates that the small family norm is well accepted by the village households. There are only

minor differences across occupational classes and communities. Poorer-wage labour - households and non Hindu households tended to have greater number of children, and more educated mothers had less number of children.

The acceptance of the small family as the societal norm has important implications for the health of children. On the one hand, fewer number of children means that mothers have more time for their care. This also reduces high risk infants who are likely to be born from pregnancies of parity above three. On the other hand the smaller family is a reflection of the confidence that mothers - and fathers - have that the children born are likely to survive into adulthood. This is a reflection of the awareness of the improved child survival environment in the rural setting.

Table 4.3 gives the proportions of adult males and females in the sample households who had completed ten years of schooling. It is apparent that:

1. Among the traditionally socially backward communities and non-Hindus, there are large proportions of males and females, who have had less than ten years of schooling. This is more true of the women. This perhaps indicates that inspite of providing free education in schools, and other government incentives to help the weaker sections of society, there are a lot of barriers to better

education for the socially backward· communities in the rural setting

2. The differences in educational achievements are more marked among occupational classes than across communities. Better education thus leads to better employment opportunities, even in the villages.

4. Living conditions and consumption pattern:

Eventhough the households in the sample fell into four major categories depending on the primary source of income, it was necessary to get an assessment of how much they varied in their income and earnings. Answers to direct question on income were extremely unreliable. Hence it was decided to look into the living conditions of the households, and the pattern of consumption of certain selected food items. This provided further justification for the inference that occupational classes do differ in terms of consumption patterns and of income.

Table 4.4 summarises the living conditions of the households, mainly the housing conditions, across occupational classes. Table 4.5 shows the consumption of certain foodstuffs viz fish, meat, eggs and milk. These, except perhaps fish, can be assumed to be luxury items in the village context, with their consumption going up more than proportionately with income, notwithstanding the fact there are some households which are vegetarians.

It is very clear that in terms of housing and consumption pattern, households with wage income and those receiving remittances

from abroad form two distinct groups at either end of the spectrum. The households with salaried employees and those with income from their own enteprises, ie., the self employed, form two amorphous groups in between.

Thus the living conditions and consumption pattern provide a basis of classifying the village households into different socio-economic classes, in the absence of reliable estimates of income.

5. Health and nutritional status of children

Against the foregoing background we shall now proceed to examine the health status of the children in the study area.

There are several methods of assessing the health status of a community. These include: mortality indices which provide a 'hard' measure of the health of the community, and several morbidity measures. There are some major constraints in deriving measures of morbidity:

1. Dependable data on morbidity calls for a longitudinal survey of the population for a reasonable length of time, at least one year;

2.   The unreliability of recall by the respondants.   Most people tend to forget minor of episodes of illnesses and the details of treatment very soon, and hence a survey based on questions about the past episodes is bound to be beset by this difficulty.   The ideal period of recall is two weeks;   this means that for morbidity surveys, the investigator should visit the household every two weeks, for a period of one year.

Such an intensive and extended survey was not possible in this case and alternative approaches were adopted.   The households were investigated for (a) deaths of children under five years in the past five years, (b) illness episodes in children 6 months to six years of age in the past three months requiring ambulatory care, and (c) episodes of illness in children 6 months to 6 years of age requiring hospitalisation in the past 3 months. The objective was to find out how the socioeconomic and physical environment of the household, as represented by the occupational class, produced any measurable difference in these indices.   Table 4.6 sets out the results. It is seen that:

1. There were no deaths of underfive children in any of the households in the past five years.

2.   The number of episodes requiring hospitalisation and ambultory

care, when standardised as episodes per child and episodes per household, in the last three months, show that wage labour households had the maximum number, with fewer numbers of episodes among the other classes which were living in better surroundings. These findings seem to confirm the interrelationship between adverse environment and health status of children, other things remaining the same.

Nutritional status and child health:

A more refined measure of the health status of the children is their nutritional status. Nutritional status in children is closely linked to their mortality and morbidity risks. Chen et al have shown that the risk of death among normal and moderately malnourished children is negligible, whereas the risk of death goes up significantly if the child is severely malnourished[3]. Thus the relationship between mortality risk and nutritional status in children seems to be an 'all or none' phenomenon, rather than a gradual process. Chen and Mosley have suggested that nutritional status along with mortality measures would constitute a good measure of the health status of a community under these conditions[1]. Alleyn et al have stressed the importance of the interrelationship between poor diet and repeated illness in the causation of clinical malnutrition: "... prevention may depend more on general public health measures"[4]. Martorell and Sharma have included Kerala as one of

the areas where increased food availability has contributed to reduction in mortality[5]. There are also several other studies which indicate the importance of the measure of nutritional status as an indicator of health status.

Among the measures of nutritional status that are available, nutritional anthropometry offers itself as a natural choice for a study of this nature, for the following reasons:

1. The ease with which anthropometric measures such as weight, height, midarm circumference, etc. are standardized and performed, making it the best choice for a community survey.

2. The availability of international standards for comparison;

3. The negative association between anthropometric indices and mortality risks convincingly established by some studies elsewhere, eg., Chen et al in Bangladesh.

4. The possibility of studying different patterns of malnutrition that are prevalent and their relation to the environment. Three anthropometric measurements were chosen for the survey: weight, height, and midarm circumference. Weight and height were chosen because the combinations of these make up the main patterns of malnutrition: (a) deficiency in weight for age, which is a gross

measure of nutritional status, (b) wasting, which is deficiency in weight for height, and (c) stunting, which is deficiency in height for age. The rationale underlying these widely accepted yardsticks needs no elaboration.

The objective of the nutritional survey was to see the extent to which socioeconomic factors account for the differences in nutritional status of children in the village. For this, a very simplified format was adoipted. A sample of children in the concerned age group was randomly drawn from about hundred households in the village. The sample consisted of 115 children, or 6.28% of the children in the village in this particular age group, ie., 6 months to 6 years. They fell into three categories:

1. Children of households belonging to higher socioeconomic group, ie., other than wage labour households

2. Children of wage labour households, but whose mothers had at least seven years of schooling,

3. Children of wage labour households whose mothers didnot have even seven years of schooling.

In this way, the influence of two important variables on child health status, viz., income and mothers' educational

status, has sought to be brought out. Another area of probing
was the possible effects of any discrimination between the sexes
which showed up as difference in nutritional status.

Weights were measured using the Salter type of spring
balance, which is the standard equipment used in ICDS nutritional
status surveys. Heights or ambulent length in children under two
years, were measured using non stretchable fibreglass tapes. Such
tapes were used for the measurement of midarm circumference also.
All anthropometry was done according to the procedure recommended
in WHO monograph no.53[6], and the measurements compared with
the National Centre for Health Statistics (U S A) norms, as
recommended by the WHO[7].

Table 4.7 sets out the means and standard deviations
for heights and weights in the three groups, divided into two
age categories, 6 months to 3 years and 3 years to 6 years.
It is seen that mean weights and heights did not differ signi-
ficantly till 3 years. After 3 years, the mean weights and heights
of the children in group III were less than those of the other
groups, in spite of their mean age being slightly higher. On
the other hand, weights and heights of children from groups I
and II were close together even after 3 years.

Maternal education seems to have a protective effect on the nutritional status of children.

Table 4.8, 4.9, 4.10 set out the proportions of normal and malnourished children in the three groups, according to accepted standards for weight for age, height for age, and weight for height, respectively. Table 4.8 shows the effect of environmental deprivation very clearly: in the group where the children had two unfavourable factors working against them, ie., mother's lack of education and low income, did poorest, whereas in the group which had only low income working against them, children had an intermediate position. The other two tables show that this is mostly the effect of stunting, or the loss of height for age. Stunting is assumed to be the effect of prolonged environmental deprivation on nutritional status. One hypothesis which would explain the finding is that in those households where the income is low but the women are educated, they would take prompt corrective action on detecting illnesses, and would take other protective measures in time, and thus prevent the adverse environment from exerting its influence on the child continuously.

From the table on midarm circumference, it is seen that the majority of children are normal according to this measurement (Table 4.11). Differences between social classes are minimal when measured according to this criterion, except for boys, in whom children from the higher socioeconomic group showed a better status. The data also

do not indicate any sexual discrimination in feeding pattern.

One important finding which is common to all these tables is that severe forms of malnutrition, which are associated with significantly greater mortality risk, are rare in the village community.

The significant findings from this analysis can be summed up as follows:

1.   There is evidence to show that the total effect of environmental deprivation would result in repeated bouts of illnesses.

2.   Nevertheless, death of underfive children and extremely severe forms of malnutrition which increase the risk of mortality are rare in the community. One could hypothesize that this is due to the availability of several forms of intervention and the institutions of care which are situated very close.

3.   There is some evidence to show that the total adverse effect of the hostile environment could be alleviated to some extent by the great positive influence of mother's education.

4.   There is no evidence from this set of data to show any effect of discrimination on the basis of sex of children in the village community.

6. Factors influencing infant mortality

In this section, certain factors which are known to have an influence on the infant mortality risk are considered in the sample households in the village. These factors are: age of marriage of females and age of childbirth, antenatal care and delivery in hospital, breastfeeding and weaning practices, and immunisation. These in turn are determind by cullture, tradition, community, income, education etc.

The age of marriage, and subsequently the age at which a woman becomes pregnant and delivers, have a profound influence not only on the mother's own health, but also on that of the baby. Teenage pregnancies tend to result in premature and low birth weight babies who are more prone to the risk of death. Parity status (birth order) above 3 also predisposes to prematurity and low birth weight with grave risks to survival of the infant. One of the factors to which fertility decline in Kerala ia attributed is reduction in marital fertility as a result of rising age of marriage. It would not be far fetched to hypothesize that the elimination of teenage pregnancies has resulted in avoiding much low birthweight and premature births and the consequent mortality, and it would be interesting to see if this is reflected in the village households. Since birth order above 3 was very rare in the sample households, the contribution of this to the risk could be neglected.

Antenatal care and childbirth in hospital are two factors that contribute greatly to reducing the risk of infant death. Antenatal check up detects malpositions and other complications early and focuses attention on the high risk pregnancies. Moreover, women who go for antenatal checkup receive anti-tetanus immunisation, thus protecting the baby againt one of the main causes of mortality in early infancy, neonatal tetanus. Child birth in hospital makes sure that the delivery is attended by skilled personnel, thus avoiding the complications that can result in loss of the baby. The proportion of childbirths in rural areas which take place in institutions is greater in Kerala than the rest of India[8]. This is another aspect which has been subjected to study in the sample households.

It has been universally accepted that breast feeding protects the young infant from diarrhoeal diseases and malnutrition, which are two of the greatest killers in infancy. Similarly, the practice of early weaning (starting the baby on solids and semisolids), also protects the baby from malnutrition and anemia. These are practices which are largely culturally determined, and are open to influences of education, lifestyle changes, information inputs from media etc. Major changes in breast feeding and weaning practices can have great influence on the survival potential of the infants in the community.

Immunisation againt specific infectious diseases is another measure which is very effective in reducing the mortality and morbidity episodes in the community. The common diseases against

which specific immunisation is available are: tuberculosis, diphtheria, tetanus, pertussis, (whooping cough), poliomyelitis, and measles. It has been hypothesized that the intensification of immunisation measures is one of the reasons for the decline in mortality, including infant and child mortality in Kerala. The objective in analysing the data from the sample households was to see if factors like income, education, community, tradition, etc. made differences in these 'hard inputs' into better child survival potential.

The age at marriage is higher than the mean among women in the wage labour households, and it is the highest among educated women in households having salaried employees. Age at marriage is lowest in the households with remittances from abroad. The higher age at marriage for girls in the wage labour households could be explained by the very fact of their poverty. Women in households of salaried employees, who had ten years of schooling, had a higher age at marriage perhaps because such women tend to continue their education into the university level : the age at marriage for girls in the same group, who had less than ten years of schooling, is not above the average. The reason why girls in the households with remittances tended to marry early is not clear; this is true of even the educated girls in the group. One possible explanation is that the group has a large proportion of Moslem households, who traditionally had a lower age at marriage for the girls.

Among the communities, non-Hindus had a lower age at marriage than the Hindu communities. In all groups, educated women had a higher age at marriage.

Mean age of first childbirth follows more or less the same pattern as the age at marriage, though there is a tendency for the gap between the age at marriage and the mean age of first childbirth to fall in the better educated group. As has been discussed, the higher mean age at marriage for women is an important factor that ensures the survival of the children being born, because teenage pregnancies are more likely to be complicated by highrisk factors such as prematurity, low birth weight, etc. The mean age at marriage in the sample for women is marginally lower than the mean age at marriage for females in Kerala and higher than that of India as a whole[9] (21.85 and 18.32 respectively).

The practice of antenatal checkups for each pregnancy and having the delivery in hospital appear to be universal practices. The only exception is the wage labour households, especially among the poorly educated women. The reasons why these practices are widespread might be attributed to the easy accessibility of institutions of health care. Eventhough antenatal checkups are freely available at government health institutions, a section of the women from the wage labour households are not able to utilise them, probably

because the opportunity cost to these women of utilising these services, in terms of the work and earnings they have to forego, might be too great.

Childbirth in hospital also, eventhough the established norm, appears to involve some cost: 18% of the deliveries in wage labour households took place in the home, whereas hospital delivery was near universal in all other occupatonal classes.

Breastfeeding is a well accepted practice in the community, with 73.5% of the children having been breastfed for at least one year. Children from wage labour households, and households with remittances had a lesser proportion having been breastfed for one year, though possibly for different reasons. In the poorer households, the necessity of the mother having to work might have prevented them from breastfeeding the babies for one full year. In the richer households, it might be due to the spread of the new elite oriented lifestyle leading to the increased recourse to bottle feeding, which is potentially unhealthy. It is also seen that the practice for breastfeeding tends to come down with higher education of mothers. In other words, this set of data points to the fact that eventhough breastfeeding for a prolonged period is traditional in rural households, with the combination of higher education for women, exposure to high pressure advertisement in the media, and higher income levels, there is a tendency for the practice to decline.

On the other hand, there were only minimal differences across occupational classes and educational groups in the practice of starting children on weaning foods early. The importance of this for the baby's health has been discussed earlier.

Only 43.3% of the children in the sample households had been satisfactorily immunised, as can be seen from Table 4.16. Among occupational classes, children from wage labour households are poorly immunised. Eventhough immunisations are free of cost in government health care centres, in the poor households, the opportunity cost involved in taking these children to these centres, may act as a hindrance to availing of this facility fully. Better education of mothers seems to make a difference in this respect, but this difference is much less in the more affluent households.

Immunisation is a conscious decision regarding the health of the child at the family level, which includes the father also. Thus it is seen that better education for the father has a greater effect in producing satisfactory immunisation status of the children (Table 4.17). The effect of the father's education on children of educated mothers is greater than the effect of mother's education on children of educated fathers (Table 4.18). Even among children both the parents of whom had more than 10 years of schooling, the level of satisfactory immunisation was only 63%. Thus, education of parents per se is not a sufficient condition for achieving near

complete immunisation status of children in the community. It may be a necessary condition.

From the foregoing discussion, the following points emerge:

1. The major factors influencing child survival in the sample households, are correct feeding and weaning practices, institutional delivery, and antenatal medical care. The first two are culturally determined, and education and income and modern lifestyles with a potentially hazardous consumption pattern are only beginning to have an effect. Eventhough regular antenatal checkup and childbirth in hospital have become quite common in the village, probably because of the accessibility of institutions of care, poverty does play a role in preventing some sections of the community from fully utilising them.

2. Education of females seems to have an important indirect effect on child health by delaying the age of female marriage, and of childbirth. This effect of education is seen in all community groups except the non Hindus.

3. Generally, immunisation of children against specific diseases does not seem to have contributed greatly to the betterment of child health status in the sample households,

except the effect of the antenatal immunisation against tetanus received by the mother. But within these limits, education, and to a lesser extent income, have a role of play in promoting better immunisation status. Perhaps because immunisation involves a deliberate act of taking the child to the health centre, fathers' education seems to play a greater role in promoting this. But the evidence seems to be that education, as an input, is at the most only a necessary condition for promoting immunisation, and not a sufficient condition by itself.

7. Perceptions and preferences influencing child health status:

In this section, an attempt is made to analyse certain perceptions and preferences of the women in the sample households, especially the mothers of under-six children, to assess the possible positive or negative influence of these on child health status. Obviously, the motheer is a key figure in the upbringing of small children, and her beliefs and practices are very important factors government the health status of children. Beliefs and practices are determined by culture, tradition, household income, education etc., and it can be seen that not only the education of the mother, but that of the father or other elder members of the family may have positive influence on the practices relating to child health.

In the first set of tables are present the mothers' perceptions about (1) the causes of illness in children, (2) the

reasons behind the better health status of children of this generation compared to those of a previous generation, and (3) what stepts are to be taken to further improve the health status of children (Table 4.19, 4.20, 4.21). The mothers fell into two groups: those who had completed less than ten years of schooling, and those who had ten years or more of formal schooling. The most striking fact emerging from this set of tables, is that there is no difference as regards beliefs and perceptions which is discernible between the two groups of mothers. A large majority in both the groups thought, that bad sanitation was an important cause of childrens' illness, and rightly so. 'Not enough food' was also given as an important cause of childrens' illness. All the respondents attributed the better health status of children of the present generation, compared to their own younger days, to 'better food', while a significant number of educated mothers thought that medical care and preventive measures were also important. Preventive measures and birth in hospital, given as important causes of falling infant and child mortality by experts, were not perceived as important by the mothers.

Table 4.21 which sets out the data on mothers' ideas about what would effectively improve the health status of children, reveals that most mothers thought that an improvement in quantity and quality ('vitamins') of food was very important in this respect. Hospital care and preventive measures were thought of as important only

by a small number. Tonic foods, drugs, and better quality of drinking water were not thought of as important by the majority of mothers. As mentioned earlier, the differences between the two groups of mothers were negligible.

These data show that generally the perceptions of the mothers in the village about child health status were what could be called positive. They thought that bad sanitary conditions were an important cause of illness in children, and believed that better food, both in quality and quantity, would contribute much to improving their health. Moreover, there were minimal differences between the opinions of the educated and less educated mothers, perhaps showing the influences of nonformal education, contact with other social groups, and other media of communications in shaping attitudes.

It is interesting to speculate on why mothers think of food as the most important single factor contributing to child health status. It could be a reflection of the cultural milieu which holds that health is dependent on right ways of living, including right eating. This attitude also part of traditional caring systems like Ayurveda. Mckeon in his assessment of the causes of improvement of health status of the population of Europe after the industrrial revolution singles out the availability of food as the most important factor. Perhaps the rural women also could instinctively sense that food deprivation is the single most important threat to health in

rural society. In a good proportion of houses in the rural area, the normal intake level is low, and for them, 'food comes first'. It is also possible that to the rural mothers, health is something positive to be built up, and food is an investment in this direction. This is in contrast to the urban technical view of health being dependent on medical care.

It is equally important to note that several factors which have been perceived as important in improving the health and survival status of children, such as birth in hospital, preventive measures, protected water, etc., were not seen as such by the mothers. This shows the difference betweeen what is perceived by the community and what is defined by the expert. Also, improving the general education level of the community doesnot seem to make them more sensitive to specific issues such as the need for protected water, etc: perhaps there is a need for specific health education efforts in this direction.

The next set of tables looks at the preference of the households for systems of care, as well as for private and government health care institutions. About half of the households had a preference for the Ayurvedic system of medicine, though they also used the modern medical facilities available. This shows the strong hold of traditional medicine in the rural community. Hindu households exhibited a distinct preference for Ayurveda system of medicine,

but no recognizable patern of preference can be seen in the table relating education to preference of system of care (Table 4.22).

But in the table relating occupational class and women's education to preference for private vs government health facility , (Table 4.23) one can at once see that as the household income goes up, the preference for private medical care also becomes stronger. In fact, only the wage labour households exhibited a greater preference for government health care. This is perhaps simply explained by the fact they could not afford private care.

From a policy point of view, this preference for personalised, private medical care is important, because: (1) in one way it expresses the widespread dissatisfaction with the medical care available in the government institutions, and (2) it also means that the cost to the community of medical care is likely to go up, because for the same category of care, private care would definitely cost more than the same in government hospitals.

Table 4.24 look at certain practices by the mothers which are perceived by them as positively contributing to child health. In the majority of households, children were given special foods, irrespective of income or educational status. High protein foods like eggs, fish, meat, and protective foods like fruits and vege- tables, headed the list of special foods given to children. It is important to note that tonics and other heavily advertised fooddrinks etc. were not routinely given to children in most of the households.

Thus the negative effects of urbanisation and advertisement campaigns have not percolated into the village to any considerable extent. Whereas from a strictly technical point of view, one might argue that giving special foods to children is not necssary to improve their nutritional status, provided the general level of intake is adequate, this practice shows the great concern for children in the community and the realisation of their vulnerable status.

The table on home care when children are sick, (Table 4.23), shows that the majority of households in the community didnot resort to any sort of home care when children were sick, and they straightaway resorted to expert help. This is perhaps surprising in a rural community, but this also emphasizes the great use to which available health service facilities are put in rural Kerala.

The table on the number of households boiling the water before drinking shows that this practice is followed in only 35.90% of houses (Table 4.25). A significantly greater proportion (52.5%) of houses with better educated women used boiled water for drinking. Household income was also another variable which had some influence on this practice, as can be seen from the table: this might be explained by the fact that fuel is becoming increasingly expensive in the rural areas. There have been speculations that the use of boiled water for drinking has contributed to the low mortality in Kerala. The table shows that in the selected village, this practice

is unlikely to have contributed greately to reduction in mortality and morbidity. Feachem says that whereas high levels of coverage with improved water supply and sanitation are not a necessary condition for major advances in mortality reduction in all circumstances, and may be necessary but not sufficient condition for reduction in diarrhoea-related mortality in some circumstances.

The participatory role of mothers in decision making relating to child health has been acknowledged as a key factor in promoting better health status of children. Women's education is found to increase this role in a setting where the health infrastructure is already present. In answer to the question 'who makes decisions regarding child health interventions in the home?', it was found that there is a tendency for the mother's role in decision making to go up with their educational attainments. But the father, or elder male member, was still the key figure in the decision making process, except when excluded by circumstances. This point is brought out in table 4.26, where it is seen that if the father is less educated, then the fact whether the mother is educated or not did not make a difference as regards her participatory role in decisions concerning the children. But if the father was educated, then educated mothers had a greater role to play in decisions about children. This is an important point which doesnot seem to have been highlighted in the literature about the imortance of women's participatory role in decisions concerning children and its effect

on child health status: the education of the father seems to have a 'priming' influence on the role of the mother in taking decisions on children.

3. Mothers' attitudes to child rearing practices:

Most hypotheses attempting to explain improved child health status in developing countries give considerable importance to the role of the mothers in the family: her educational status, her social status, decision making power etc. So this section tries to capture the attitude of mothers to various aspects of child rearing. On the one hand, this could tell us in which areas of child rearing the mother's positive influence is strongest; on the other, we could see, by comparison with the earlier sections, whether these positive influences are translated into action.

Methodology:

One mother was chosen from each household, so that there were seventy eight sets of responses in all. To each mother was given a set of fifty statements: ten each on 1) child health status awareness 2) breastfeeding, 3) care of sick children 4) artificial feeding and 5) immunisation. These included positive as well negative statements: (see appendix). The mothers were asked to respond to each as 'agree', 'disagree', or 'don't know'. In each case, the

response which was judged to be the most conducive to promoting child health, was given a positive score, and the others, zero or negative scores respectively.

Table 4.27 looks at the distribution of responses. In each of the five groups of statements, there were 78 sets of 10 responses. Each of these seventy eight, could have a score ranging from zero, to all ten positive. (Negative responses were ignored). The distribution table shows that strongest positive attitudes in the community was towards breast feeding, followed by child health status awareness. Care of sick children, artificial feeding and immunisation all had low positive scores.

In the next set of tables, the mothers were categorised according to community, occupational class, and husband's education. In all the tables, the mothers' educational status was taken as one variable. In each mother's five sets of responses, the net positive ones, after considering the positive and negative ones, were counted; so that each mother could have a range from five positive to five negative answers. The proportion (percentage) of positive responses are tabulated.

Breastfeeding has a 100 percent score in all tables, emphasizing the fact that attitudes to breastfeeding are universally positive. It is significant that factors such as income (occupational

class), father's education or mother's own education do not have any negative impact on the mothers' attitudes to breastfeeding. One of the important ways in which the process of urbanisation may have a negative impact on child health is through the erosion of such traditional practices as breastfeeding, by the pressure of such devices as advertising. Where as there is no erosion of the mothers' positive attitude to breastfeeding, we have seen in an earlier section that income and education do seem to have a marginally negative impact on the actual practice of breastfeeding. This seems to indicate that childrearing practices are determined in many cases by other factors also, besides womens' attitudes.

Mothers had a generally positive attitude towards artificial feeding, and child health status, and a low positive score in the care of sick children. The independent variables such as occupational class, education or community did not produce much variation in the scores.

Awareness of immunisation had generally a low score. Whereas this did not very much across communities, there is a steady increase in the score with income (occupational class). But fathers' (husbands') education has a definite positive influence on the mothers' awareness about immunisation: this is a very significant finding.

One of the important things that strikes one is the uniformity

of the scores in almost all sections. Community, edu- cational status and occupational class make minimal differences in most. This is a pointer to the homogeneity of the village community in Kerala, and one reason why positive influences spread throughout the community irrespective of educational or social status.

The important positive attributes to childrearing in the village are mostly in traditional practices. Such artifices of 'modernisation' as artificial feeding have so far made relatively little impact on the village community. But on the other hand, they have also been rather reluctant to accept such modern positive inputs into promoting child health, such as immunisation. The education of the husbands is seen to be a more important factor in sensitizing them to these modernizing influences than that of the mothers.

The question why attitudes to immunisation become more and more positive with increasing income is an important one. Partly this could be explained by the effect of the education of the husband, as we have seen earlier: better educated husbands tend to have greater income. But partly it could also be due to the fact that with increasing income levels, the mother is more and more likely to be assimilated into the life style mof modernity, of which immunisation forms a part.

9. Conclusion:

The findings from the village survey are summarised below. We have confirmed that the small family norm is accepted among all sections of the population, with only minor differences attributable to community, education, and income. This is consistent with our jkfinding in chapter III that the rate of population increase in the village has slowed down. The implications of smaller family size for the health of children and mothers have been already discussed.

We have also seen in some detail how klsome of the various influences on child health status which have been identified in earlier writings at a macro level, actually work at the household level. Thus education is important both because of its indirect effect of prolonging the age of marriage of kgirls, as well as by inducing positive behaviour patterns with respect to child rearing. On the other hand, we have also seen that education per se is not a sufficient condition in making acceptable certain promotive practices like ,immunisation. Also important in this respect is the finding that fathers' education is crucial to many aspects in promoting child health.

We have seen that ﹔some of the potential negative effects of increased income and elite lifestyles have not percolated into the village community, perhaps because of the lasting effect of tradi- tion.

Social investments in health care infrastructure by the government have had their returns, since we have found that there is great utilisation of these in the village. But it is also seen that poverty still remains the barrier for some sections of the population in utilising these fully.

TABLE 4.1. AVERAGE AGE OF MOTHER AND AVERAGE NUMBER OF CHILDREN 6/12 – 6 YEARS OF
AGE PER NUCLEAR FAMILY UNIT IN THE SAMPLE HOUSEHOLDS, BY OCCUPATIONAL
CLASS AND COMMUNITY

COMMU-NITY	OCCUPA-TIONAL CLASS	WAGE LABOUR	SELF EMPLOYED OTHERS	SALARIED	REMITTANCES	ALL
HINDU BACKWARD		(22) a 28.4 b 1.6	(9) a 26.9 b 1.3	(5) a 28.7 b 1.2	(5) a 27.6 b 1.3	(41) a 27.9 b a.4
OTHER HINDUS		--	(7) a 28.3 b 1.1	(14) a 27.6 b 1.2	-	(21) a 27.8 b 1.2
NON HINDUS		(1) a 21.0 b 3.0	(9) a 26.6 b 1.4	(1) a 22.0 b 1.5	(5) a 27.3 b 1.6	(16) a 26.1 b 1.6
		(23) a 28.1 b 1.7	(25) a 27.1 b 1.2	(20) a 27.5 b 1.2	(10) a 27.5 b 1.5	(78) a 27.5 b 1.4

a. average age of mother   b. average number of children 6 months – 6 years per
nulcear family unit

Numbers in brackets indicate number of households in each category. A few
households had more than one nuclear family unit.

TABLE 4.2 AVERAGE AGE OF MOTHER AND AVERAGE NUMBER
OF CHILDREN PER NUCLEAR FAMILY UNIT IN
THE SAMPLE HOUSEHOLDS, BY EDUCATION OF
MOTHER AND COMMUNITY

COMMU-NITY	EDU-CATION OF MOTHER	Less than 10 years of Schooling	10 years or more of Schooling	ALL
HINDU BACKWARD COMMUNITIES		(25) a 28.3 b 1.6	(16) a 27.0 b 1.4	(41) a 27.7 b 1.5
OTHER HINDUS		(6) a 27.3 b 1.5	(15) a 28.4 b 1.1	(21) a 28.1 b 1.2
NON HINDUS		(8) a 25.1 b 1.6	(8) a 26.9 b 1.6	(16) a 25.9 b 1.6
ALL		(39) a 28.1 b 1.6	(39) a 27.5 b 1.3	(78) a 27.8 b 1.5

a: average age of mother
b: average number of children 6 months to
6 years of age

Number in brackets indicate number of
households in each category. A few house-
holds had more than are nuclear family unit.

In such households of the education level of
the mothers belonged to different categories,
only one mother and her children were counted.

TABLE 4.3: PROPORTION (PERCENTAGE) OF MALES AND FEMALES ABOVE FIFTEEN YEARS
WHO HAVE COMPLETED 10 YEARS OF SCHOOLING, BY OCCUPATIONAL CLASS
AND COMMUNITY

Community	Occupational class of household	Wage labour	Self Employed and other	Salaried	Remittances	All
Hindu, Backward		a 5.3 b 17.3	a 65.0 b 35.0	a 87.5 b 72.7	a 81.3 b 64.3	a 42.7 b 34.0
Other Hindus		-	a 66.7 b 68.8	a 76.5 b 51.4	-	a 73.9 b 56.9
Non Hindus		-	a 52.4 b 25.0	a 33.3 b -	a 64.7 b 38.5	a 54.8 b 26.8
All		a 5.1 b 16.9	a 60.4 b 40.0	a 75.6 b 53.1	a 72.7 b 51.9	a 54.1 b 38.6

a : Males

b : Females

TABLE 4.4: LIVING CONDITIONS BY OCCUPATIONAL CLASS IN THE SAMPLE HOUSEHOLDS

Condition of Dwelling / Occupational class of household	Total number	Owned by Family	Pucca construction	More than 2 rooms	Electrified	Having sanitary latrine	Source of water well tap or pump	Subscription to newspaper	Radio in the house
Wage Labour	23	15 (65.22)	13 (56.52)	14 (60.86)	3 (13.04)	9 (39.13)	22 (95.65)	10 (43.5)	7 (30.4)
Salaried	20	17 (85.0)	19 (95.0)	18 (90.0)	13 (65.0)	16 (80.0)	20 (100.0)	12 (60.0)	17 (85.0)
Self employed and others	25	23 (92.0)	20 (80.0)	21 (84.0)	18 (72.0)	17 (68.0)	24 (96.0)	19 (76.0)	23 (92.0)
Remittances	10	7 (70.0)	10 (100.0)	10 (100.0)	9 (90.0)	9 (90.0)	10 (100.0)	9 (90.0)	9 (90.0)

Numbers in brackets indicate percentages

TABLE: 4.5 REGULAR CONSUMPTION OF SELECTED FOOD ITEMS
IN SAMPLE HOUSEHOLDS – VILLAGE NATTIKA

OCCUPA- TIONAL CLASS OF HOUSE- HOLDS	CONSUMP- TION ITEM	TOTAL NUM- BER OF HOUSE- HOLDS	FISH	MEAT	EGGS	MILK
WAGE LABOUR		23	23 (100)	16 (69.57)	6 (26.09)	13 (56.52)
SALARIED		20	18 (90)	14 (70)	9 (45)	19 (95)
SELF EMPLOYMENT		23	22 (95.65)	19 (82.61)	13 (56.52)	19 (82.61)
REMITTANCE FROM ABROAD		10	10 (100)	9 (90)	10 (100)	10 (100)
OTHERS		2	2 (100)	2 (100)	2 (100)	2 (100)

Note: Figures in brackets indicate percentages

TABLE 4.6. EPISODES OF MINOR ILLNESSES AND HOSPITALISATION AMONG CHILDREN 0-6
IN THE SAMPLE HOUSEHOLDS

EPISODES OF ILLNESSES	HOUSEHOLDS BY OCCUPA- TIONAL CLASS	WAGE LABOUR HOUSES	SELF EMPLOYED HOUSEHOLDS	SALARIED HOUSEHOLDS	HOUSEHOLDS WITH REMITTANCES	OTHERS
Total Households		.23	23	20	10	1
Total children		42	34	31	20	4
Minor illness		18	12	10	3	1
Episodes per child		0.55	0.35	0.32	0.15	0.25
Episodes per house- hold		0.78	0.52	0.50	0.30	0.50
Hospitalisation		8	3	1	1	0
Episodes per child		0.34	0.13	0.05	0.10	-
Episodes per house- hold		0.19	0.088	0.032	0.05	-

There were no deaths.

TABLE 4.7. MEAN WEIGHTS AND HEIGHTS OF SAMPLE CHILDREN
ACCORDING TO SOCIAL CLASS AND MOTHER'S EDUCATION

SOCIAL CLASS AND EDU-CATION OF WOMEN	AGE	6 months to 3 years		3 years to 6 years	
		WEIGHT KILOGRA-MMES	HEIGHT CENTI-METRES	WEIGHT KILO-GRAMMES	HEIGHT CENTI-METRES
I		(15)	(14)	(20)	(20)
HIGHER SOCIOECONOMIC CLASS		a 23.2 b 9.48+ ±1.56	a 23.2 b 78.42+ ±6.92	a 50.7 b 14.01 ± 1.77	a 50.7 b 99.2 ± 8.08
II					
WAGE LABOUR HOUSEHOLDS, MOTHERS WITH SEVEN YEARS OR MORE OF SCHOOLING		(14) a 24.6 b 9.60 ± 2.8	(14) a 24.6 b 79.46 ± 8.27	(20) a 51.8 b 13.90 ± 1.79	(20) a 51.8 b 97.20 ± 7.71
III					
WAGE LABOUR HOUSEHOLDS, MOTHERS HAVING LESS THAN 7 YEARS OF SCHOOLING		(18) a 26.2 b 9.51 ± 1.34	(18) a 26.2 b 78.94 ± 5.50	(28) a 53.9 b 12.64 ± 1.28	(27) a 53.9 b 94.93 ± 5.68
				(p = ∠ 0.001)	(NS at 5% level

a - mean age in months
b - measurement
Numbers in brackets indicate number of children
in each category.

TABLE   4.8   NUTRITIONAL STATUS OF CHILDREN _ WEIGHT
              FORAGE BY SOCIOECONOMIC CLASS _ SAMPLE
              FROM NATTIKA VILLAGE
              *GOMEZ CLASSIFICATION

NUTRITIONAL STATUS	HIGHER SOCIO- ECONOMIC CLASS HOUSE- HOLDS	WAGE LABOUR HOUSEHOLDS WHERE MOTHER HAD 7 YEARS SCHOOLING	WAGE LABOUR HOUSEHOLDS, MOTHER HAVING LESS THAN 7 YEARS' SCHOOLING
NORMAL ($\geq$ 91% Weight for age) + MILD (1O) MALNUTRITION (9O - 76% Weight for age)	31 (88.57)	24 (70.59)	21 (45.65)
MODERATE (2°) MALNUTRITION (61 - 75% Weight for age) + SEVERE (3ß) MALNUTRITION ($\leq$ 60%) weight for age)	4 (11.43)	10 (29.41)	25 (54.35)
TOTAL	35	34	46

Note: Figures in brackets indicate percentages. $p < 0.005$

    * Gomez F. et al. 1956 a: Lancet, ii, 121.

TABLE 4.9 NUTRITIONAL STATUS OF CHILDREN _ HEIGHT FOR AGE _ BY SOCIOECONOMIC CLASS SAMPLE FROM NATTIKA VILLAGE

NUTRI_TIONAL STATUS	SOCIAL CLASS	HIGHER SOCIOECONO_MIC CLASS HOUSEHOLDS	WAGE LABOUR HOUSEHOLDS_ MOTHER HAVING 7 YEARS' SCHOOLING	WAGE LABOUR HOUSEHOLDS, MOTHER HAVING LESS THAN 7 YEARS' SCHOOLING
NORMAL (91-100% Height for age)		28 (82.35)	27 (19.41)	21 (46.67)
BELOW NORMAL $\leq$ 90% HEIGHT FOR AGE		6 (17.65)	7 (20.59)	24 (53.33)
TOTAL		34	34	45

Note: Figures in brackets indicate percentages $p < 0.01$

TABLE 4.10 NUTRITIONAL STATUS _ WEIGHT FOR HEIGHT _
OF CHILDREN BY SOCIOECONOMIC CLASS
SAMPLE FROM VILLAGE NATTIKA

NUTRI-TIONAL STATUS :	HIGHER SOCIOECONO-MIC CATEGORY HOUSEHOLDS.	WAGE LABOUR HOUSEHOLDS _ MOTHER HAVING 7 YEARS' SCHOOLING	WAGE LABOUR HOUSEHOLDS MOTHER HAVING LESS THAN 7 YEARS' SCHOOL-ING
NORMAL 91 _ 100% WEIGHT FOR HEIGHT	21 (61.76)	21 (61.76)	22 (50)
BELOW NORMAL ≤ 90% WEIGHT FOR HEIGHT	13 (38.24)	13 (38.24)	22 (50)
TOTAL	34	34	44

Note: Figures in brackets   N.S. at 5% level.
indicate percentages

TABLE 4.11: NUTRITIONAL STATUS OF CHILDREN BY SEX AND SOCIAL CLASS - SAMPLE FROM VILLAGE NATTIKA MIDARM CIRCUMFERENCE

		I BOYS				II GIRLS				
Sex and socio Ec. class / Nutrition status		(a) Higher socio-economic class households	(b) Wage labour households mother having 7 years schooling	(c) Wage labour households mother having less than 7 years schooling	Total (a+b+c)	(d) Higher Socio-economic class households	(e) Wage labour households mother having 7 years schooling	(f) Wage labour households mother having less than 7 years schooling	Total (d+e+f)	Grand Total (a+b+c+ d+e+f)
Normal (13.5 cms)	N	16	10	12	38	6	9	14	29	67
	P	88.89	62.5	66.67	73.08	60	64.29	60.87	61.7	67.67
Borderline Malnutrition (12.5-13.5cms)	N	2	4	6	12	3	4	9	16	28
	P	11.11	25.0	33.33	23.08	30	28.57	39.13	34.04	28.28
Severe Malnutrition (12.5cms)	N	0	2	0	2	1	1	0	2	4
	P		12.5		3.89	10	7.14		4.26	4.04
Total		18	16	18	52	10	14	23	47	99

N = Number
P = Percentage

TABLE 4.12 MEAN AGE OF MARRIAGE AND MEAN AGE OF FIRST
CHILD BIRTH, MOTHERS OF CHILDREN 0-6 YEARS
IN THE SAMPLE, BY EDUCATION AND OCCUPATIONAL
CLASS

a: age of marriage b. age of first childbirth

OCCU- EDUCA- PATION- TION AL CLASS OF OF HOUSE MOTHER HOLD	(a) Less than 10 years of school	(b) 10 years or more of school	(c) ALL
(i) Wage labour	(20) a. 20.8 b. 22.7	(3) a. 22.3 b. 23.3	(23) a. 21.0 b. 22.8
(ii) Self employed and others	(11) a. 18.5 b. 20.0	(14) a. 21.0 b. 22.6	(25) a. 19.9 b. 21.5
(iii) Salaried	(6) a. 19.0 b. 20.4	(14) a. 24.0 b. 25.2	(20) a. 22.5 b. 23.8
(iv) Remittance	(2) a. 18.5 b. 19.5	(8) a. 19.8 b. 21.1	(10) a. 19.5 b. 20.8
(v)	(39) a. 19.7 b. 21.4	(39)a. 21.7 b. 23.3	(78) a. 20.7 b. 22.4

Figures in parantheses indicate number of households
in each category

TABLE 4.13 AGE OF MARRIAGE OF MOTHERS OF CHILDREN 0-6 YEARS, IN THE SAMPLE, BY EDUCATION AND COMMUNITY

COMMU-NITY	EDU-CA-TION	(a) Less than 10 years of School	(b) 10 years or more of schooling	(c) ALL
(i) HINDU BACKWARD		(25) 20.5	(16) 22.4	(41) 21.2
(ii) OTHER HINDUS		(6) 19.7	(15) 22.4	(21) 21.6
(iii) NON HINDUS		(8) 17.4	(8) 18.8	(16) 18.1
(iv) ALL		(39) 19.7	(39) 21.7	(78) 20.7

Figures in brackets indicate number of households in each category

TABLE   4.14   PROPORTION (PERCENTAGE), OF PREGNANCIES
WHICH RECEIVED ANTENATAL CARE, AND BIRTHS
IN HOSPITAL, IN THE LAST SIX YEARS, IN THE
SAMPLE HOUSEHOLDS, BY EDUCATION OF MOTHER
AND OCCUPATIONAL CLASS

OCCU-PATION CLASS	EDU-CA-TION	Less than 10 years of schooling	10 years or more of schooling	ALL
(i) Wage labour		(20) a 65.8 b 85.3	(3) a 100.00 b 60.0	(23) a 69.8 b 82.0
(ii) Self employed and others		(11) a 88.2 b 100.0	(14) a 95.7 b 94.7	(25) a 92.5 b 97.2
(iii) Salaried		(6) a 88.9 b 100.0	(14) a 100.0 b 100.0	(20) a 96.9 b 100.0
(iv) A Remittance		(2) a 100.0 b 100.00	(8) a 100.0 b 100.0	(10) a 100.0 b 100.0
(v) ALL		(39) a 75.8 b 92.1	(39) a 98.6 b 95.4	(78) a 87.5 b 93.8

a : antenatal care   b.   birth in hospital

Numbers in parantheses indicate   number of
households in each category

TABLE 4.15 PROPORTION (PERCENTAGE), OF CHILDREN 6 MONTHS – 6 YEARS IN THE SAMPLE HOUSE-HOLDS, WHO WERE
1 (a) BREASTFEED FOR AT LEAST ONE YEAR
2 (b) STARTED ON SOLIDS BEFORE 6 MONTHS
OF AGE, BY EDUCATION OF MOTHER AND OCCUPATIONAL CLASS

OCCU-PATIONAL CLASS EDU-CA-TION	Less than 10 years of schooling	10 years or more of schooling	ALL
(i) Wage labour	(20) a 70.6 b 80.0	(3) a 40.0 b 100.0	(23) a 66.7 b 82.1
(ii) Self employed and others	(11) a 94.1 b 68.8	(14) a 68.2 b 81.0	(25) a 79.5 b 75.7
(iii) Salaried	(6) a 80.0 b100.0	(14) a 79.2 b 82.6	(20) a 76.5 b 88.2
(iv) Remittance	(2) a100.0 b100.0	(8) a 61.1 b 94.4	(10) a 65.0 b 95.0
(v) ALL	(39) a 79.4 b 81.3	(39) a 68.1 b 86.4	(78) a 73.5 b 83.8

Figures in parantheses indicate number of households in each category

TABLE 4.16   PROPORTION (PERCENTAGE) OF CHILDREN
6 MONTHS - 6 YEARS OF AGE IN THE SAMPLE
HOUSE HOLDS, WHO WERE SATISFACTORILY
IMMUNISED, BY EDUCATION OF MOTHER AND
OCCUPATIONAL CLASS OF HOUSEHOLD.

OCCU-PATION CLASS	EDU-CA-TION OF MOTHER	a. Less than 10 years of schooling	b. 10 years or more of schooling	c. ALL
(i) Wage labour		(35) 14.3	(5) 40.0	(40) 17.5
(ii) Self employed and others		(17) 47.1	(21) 57.1	(38) 52.6
(iii) Salaried		(11) 36.4	(24) 54.2	(35) 48.6
(iv) Remittance		(2) 100.0	(19) 63.2	(21) 66.7
(v) ALL		(65) 29.2	(69) 56.5	(134) 43.3

Figures in parantheses indicate number of
children in each category

TABLE 4.17 PROPORTION (PERCENTAGE) OF CHILDREN
6 MONTHS - 6 YEARS OF AGE IN THE
SAMPLE HOUSEHOLDS WHO WERE SATISFACTORILY
IMMUNISED, BY EDUCATION OF FATHER AND
OCCUPATIONAL CLASS

OCCU-PATIONAL CLASS	EDU-CA-TION of FATHER	a. Less than 10 years of schooling	b. 10 years or more of schooling	c. ALL
(i) Wage labour		(40) 17.5	(-) -	(40) 17.5
(ii) Self employed and others		(15) 40.0	(23) 60.9	(38) 52.6
(iii) Salaried		(6) 16.7	(29) 55.2	(35) 48.6
(iv) Remittance		(2) 0.0	(19) 73.7	(21) 66.7
(v) ALL		(63) 22.2	(71) 62.0	(134) 43.3

( ) Figures in parantheses indicate number of
children in each category

TABLE 4.18   PROPORTION (PERCENTAGE) OF CHILDREN
6 MONTHS - 6 YEARS OF AGE IN THE
SAMPLE HOUSEHOLDS SATISFACTORILY
IMMUNISED BY MOTHER'S EDUCATION AND
FATHER'S EDUCATION

FATHER'S EDUCATION MOTHER'S EDUCATION	a. Less than 10 years of schooling	b. 10 years or more of schooling	c. ALL
(i) Less than 10 years of schooling	(48) 18.8	(15) 33.3	(63) 22.2
(ii) 10 years or more of schooling	(17) 58.8	(54) 63.0	(71) 62.0
(iii) All	(65) 27.2	(69) 56.5	(134) 43.3

(1)   Figures in parantheses indicate
number of children in each category

(2)   Difference between proportions

       aii   and   bii   - Significant at 5% level

       bi   and   bii   - Significant at 5% level

TABLE 4.19: RESPONSES TO THE QUESTION "WHAT ARE THE ~~CLASS~~ CAUSES OF ILLNESS IN CHILDREN": PROPORTION (PERCENTAGE) OF MOTHERS IN THE SAMPLE GIVING VARIOUS ANSWERS, BY EDUCATION AND OCCUPATIONAL CLASS

Occupa- tional class	Mother's Education	(a) Less than 10 years of schooling	(b) 10 years or more of schooling	(c) All
(i) Wage Labour		(20) a 40.0 b 80.0 c 15.0 d 5.0	(3) a 33.3 b 66.7 c 0.0 d 0.0	(23) a 39.1 b 78.3 c.13.0 d 4.3
(ii) Self employed and others		(11) a 45.5 b 72.7 c 0.0 d 0.0	(14) a 42.8 b 92.9 c 0.0 d 14.3	(25) a 44.0 b 84.0 c 0.0 d 8.0
(iii) Salaried		(6) a 33.3 b100.0 c 0.0 d 16.7	(14) a 50.0 b 85.7 c 0.0 d 7.1	(20) a 45.0 b 90.0 c 0.0 d 10.0
(iv) Remittances		(2) a 0.0 b 50.0 c 0.0 d 0.0	(8) a 37.5 b 87.5 c 12.5 d 0.0	(10) a 30.0 b 80.0 c 10.0 d 0.0
(v) All		(39) a 38.5 b 79.5 c 7.7 d 5.1	(39) a 43.6 b 87.2 c 2.6 d 7.7	(78) a 41.0 b 83.3 c 5.1 d 6.4

ANSWERS: a. Not getting enough food
 b. In Sanitary surroundings
 c. Lack of drugs, medical care
 d. evil spirits etc.

Numbers in brackets indicate number of houses in each category

TABLE 4.20: RESPONSES TO THE QUESTION "WHY ARE CHILDREN NOWADAYS MORE HEALTHY AND LIKELY TO SURVIVE INTO ADULTHOOD ? PROPORTION (PERCENTAGE) OF MOTHERS IN THE SAMPLE GIVING VARIOUS ANSWERS, BY EDUCATION AND OCCUPATIONAL CLASS

Occupational class	Mother's Education	Less than 10 years' schooling		10 years or more of schooling		All	
(i) Wage Labour		(20)	a 15.0 b100.0 c 0.0 d 0.0	(3)	a 33.3 b100.0 c 0.0 d 33.3	(23)	a 17.4 b100.0 c 0.0 d 4.3
(ii) Self employed and others		(11)	a 18.2 b100.0 c 0.0 d 0.0	(14)	a 21.4 b100.0 c 21.4 d 7.1	(25)	a 20.0 b100.0 c 12.0 d 4.0
(iii) Salaried		(6)	a 16.7 b100.0 c 0.0 d 0.0	(14)	a 28.6 b100.0 c 7.1 d 0.0	(20)	a 25.0 b100.0 c 5.0 d 0.0
(iv) Remittances		(2)	a 50.0 b100.0 c 0.0 d 0.0	(8)	a 37.5 b100.0 c 0.0 d 0.0	(10)	a 40.0 b100.0 c 0.0 0.0
(v) All		(39)	a 17.9 b100.0 c 0.0 d 0.0	(39)	a 28.2 b100.0 c 10.3 d 5.1	(78)	a 23.0 b100.0 c 5.1 d 2.6

ANSWERS   a: better medical care
           b: better and more food
           c: preventive and promotive measures
           d: birth in hospital

Numbers in brackets indicate number of households in each category

TABLE 4.21 RESPONSES TO THE QUESTION: "HOW CAN YOU
IMPROVE CHILDREN'S HEALTH". PROPORTION
(PERCENTAGE) OF MOTHERS IN THE SAMPLE
GIVING VARIOUS ANSWERS, BY EDUCATION AND
OCCUPATIONAL CLASS

OCCU-PATIONAL CLASS	MOTHER'S EDUCA-TION	Less than 10 years' schooling	10 years or more of schooling	ALL
(i) Wage Labour		(20) a 85.0 b 10.0 c 15.0 d 0.0	(3) a 100.0 b 0.0 c 0.0 d 0.0	(23) a 87.0 b 8.7 c 13.0 d 0.0
(ii) Self employed and others		(11) a 90.9 b 18.2 c 9.1 d 18.2	(14) a 100.0 b 7.1 c 7.1 d 21.4	(25) a 96.0 b 12.0 c 8.0 d 20.0
(iii) Salaried		(6) a 100.0 b 16.7 c 0.0 d 16.7	(14) a 92.9 b 21.4 c 7.1 d 14.3	(20) a 95.0 b 20.0 c 5.0 d 15.0
(iv) Remittance		(2) a 100.0 b 0.0 c 0.0 d 0.0	(8) a 100.0 b 12.5 c 0.0 d 0.0	(10) a 100.0 b 10.0 c 0.0 d 0.0
(v) ALL		(39) a 89.7 b 12.8 c 10.3 d 7.7	(39) a 97.4 b 12.8 c 5.1 d 12.8	(39) a 93.6 b 12.8 c 7.7 d 10.3

Answers: a: more food/better food b: hospitals and drugs
c: tonics and tonic foods d: preventive and
promotive

Numbers in brackets indicate number of houses
in each category

TABLE 4.22 PROPORTION (PERCENTAGE) OF HOUSEHOLDS
IN THE SAMPLE PREFERING MODERN MEDICINE
TO AYURVEDA AND OTHER SYSTEMS, BY
EDUCATION AND COMMUNITY

COMMU- NITY	EDUCA- TION OF MOTHER	a. Less than 10 years of schooling	b. 10 years or more of schooling	c ALL
(i) HINDU BACKWARD		(25) 40.0	(16) 43.8	(41) 41.5
(ii) OTHER HINDUS		(6) 50.0	(15) 33.3	(21) 38.1
(iii) NON HINDUS		(8) 50.0	(8) 62.5	(16) 56.3
(iv) ALL		(39) 43.6	(39) 43.6	(78) 43.6

Figures in parantheses indicate number of
households in each category.

TABLE 4.23 PROPORTION (PERCENTAGE) OF HOUSEHOLDS
IN THE SAMPLE PREFERRING (a) PRIVATE CARE,
MEDICAL CARE AND (b) USING HOME REMEDIES
BY MOTHER'S EDUCATION AND OCCUPATIONAL CLASS

OCCUPA- MOTHER'S TIONAL EDUCA- CLASS TION	a. Less than 10 years of schooling	b. 10 years or more of schooling	c. ALL
(i) Wage labour	(20) a 25.0 b 45.0	(3) a 0.0 b 33.3	(23) a 21.7 b 43.5
(ii) Self employed and others	(11) a 81.8 b 36.4	(14) a 85.7 b 35.7	(25) a 84.0 b 36.0
(iii) Salaried	(6) a 83.3 b 0.0	(14) a 85.7 b 35.7	(20) a 85.0 b 25.0
(iv) Remittances	(2) a 100.0 b 100.0	(8) a 100.0 b 37.5	(10) a 100.0 b 50.0
(v) ALL	(39) a 53.8 b 38.5	(39) a 82.0 b 35.9	(78) a 67.9 b 37.2

Numbers in brackets indicate number of households in
each category.

TABLE 4.24. PROPORTION (PERCENTAGE) OF HOUSEHOLDS IN THE SAMPLE WHERE VARIOUS SPECIAL FOODS ARE GIVEN TO CHILDREN: BY MOTHER'S EDUCATION AND OCCUPATIONAL CLASS

OCCU-PATIONAL CLASS	MOTHER'S EDUCA-TION	a Below 10 years of Schooling	b 10 years or more of schooling	c ALL
(i) Wage Labour		(20) a 35.0 b 50.0 c 0.0	(3) a 0.0 b 33.1 c 0.0	(23) a 30.4 b 47.8 c 0.0
(ii) Self employed and others		(11) a 45.5 b 45.5 c 18.2	(14) a 57.1 b 42.9 c 0.0	(25) a 52.0 b 44.0 c 8.0
(iii) Salaried		(6) a 50.0 b 33.3 c 0.0	(14) a 42.9 b 57.1 c 0.0	(20) a 45.0 b 50.0 c 0.0
(iv) Remittances		(2) a 50.0 b 50.0 c 100.0	(8) a 75.0 b 62.5 c 0.0	(10) a 70.0 b 60.0 c 20.0
(v) ALL		(39) a 41.0 b 46.2 c 10.3	(39) a 51.3 b 51.3 c 0.0	(75) a 46.2 b 48.7 c 5.1

a. Protein foods - fish, eggs, meat

b. Fruits and vegetables

c. 'tonics' and 'tonic foods'

Numbers in brackets indicate number of households in each category. Only one mother from each household was in teriewed.

TABLE 4.25 PROPORTION (PERCENTAGE) OF HOUSEHOLDS IN THE SAMPLE WHERE DRINKING WATER IS BOILED BEFORE USE, BY EDUCATION OF MOTHER AND OCCUPATIONAL CLASS

OCCUPA-TIONAL CLASS	EDUCA-TION OF MOTHER	a Less than 10 years of schooling	b 10 years or more of schooling	c ALL
(i) Wage Labour		(20) 0.0	(3) 0.0	(23) 0.0
(ii) Self employed and others		(11) 36.4	(14) 42.9	(25) 40.0
(iii) Salaried		(6) 33.3	(14) 57.1	(20) 50.0
(iv) Remittances		(2) 100.0	(8) 75.0	(10) 80.0
(v) ALL		(39) 20.5	(39) 51.3	(78) 35.9

Numbers in brackets indicate number of households in each category.

TABLE 4.26   PROPORTION (PERCENTAGE) OF HOUSEHOLDS
WHERE THE MOTHER WAS CONSULTED ON
DECISIONS ABOUT CHILDREN BY MOTHER'S
EDUCATION AND FATHER'S EDUCATION

FATHER'S EDUCATION MOTHER'S EDUCATION	a Less than 10 years of schooling	b 10 years or more of schooling	c ALL
(i) Less than 10 years of schooling	(30) 33.3	(9) 33.3	(39) 33.3
(ii) 10 years or more of schooling	(9) 44.4	(30) 60.0	(39) 56.4
(iii) ALL	(39) 35.9	(39) 53.8	(78) 44.9

Note: (1)   Proportion a(iii) and b(iii)
are not significantly different at 5% level

(2)   Proportion ci and cii are <u>significantly</u>
different at 5% level.

Numbers in brackets indicate number of households
in each category. Only one nuclear family unit
was interriewed in each household.

TABLE 4.27   ATTITUDES OF MOTHERS TO ASPECTS OF CHILD REARING
FREQUENCY DISTRIBUTION OF RESPONSES IN EACH
GROUP BY SCORE

SCORE	Responses: Distribution in each group	A Child health status awareness	B Breast feeding	C care of sick children	D Artificial feeding	E Immunisation
0		1	0	1	1	1
1		0	0	2	1	7
2		1	1	2	0	10
3		1	0	1	4	11
4		3	1	9	7	16
5		9	0	46	18	16
6		20	5	16	17	13
7		33	12	1	18	4
8		9	28	0	7	0
9		1	24	0	4	0
10		0	7	0	1	0
TOTAL:		78	78	78	78	78
MEDIAN:		6-7	7-8	4-5	5-6	4-5

TABLE 4.28 MOTHERS' ATTITUDES TO CHILDREARING: PROPORTION (PERCENTAGE) OF MOTHERS WHO GAVE POSITIVE RESPONSES TO GROUPS OF STATEMENTS, BY EDUCATION AND COMMUNITY

COMMU-NITY	EDU-CA-TION	Less than 10 years of schooling	10 years or more of schooling	ALL
HINDU BACKWARD COMMUNI-TIES		A: 80.0 (25) B: 100.00 C: 28.0 D: 72.0 E: 28.0	A: 87.5 (16) B: 100.0 C: 25.0 D: 87.5 E: 25.0	A: 82.9 (41) B: 100.0 C: 26.8 D: 78.0 E: 26.8
OTHER HINDUS		A: 100.0 (6) B: 100.0 C: 33.3 D: 100.0 E: 33.3	A: 86.7 (15) B: 100.0 C: 60.0 D: 100.0 E: 46.7	A: 90.5 (21) B: 100.0 C: 52.4 D: 100.0 E: 42.9
NON HINDUS		A: 100.0 (8) B: 100.0 C: 50.0 D: 100.0 E: 37.5	A: 100.0 (8) B: 100.0 C: 62.5 D: 62.5 E: 50.0	A: 100.0 (16) B: 100.0 C: 56.3 D: 81.3 E: 43.8
ALL		A: 87.2 (39) B: 100.0 C: 33.3 D: 82.1 E: 30.8	A: 92.3 (39) B: 100.0 C: 46.2 D: 87.2 E: 38.5	A: 88.5 (78) B: 100.0 C: 39.7 D: 84.6 E: 34.6

CODE: A: AWARENESS OF CHILD HEALTH STATUS
B: BREASTFEEDING
C: CARE OF SICK CHILDREN
D: ARTIFICIAL FEEDS AND WEANING FOODS
E: IMMUNISATION

Numbers in brackets indicate number of households in each category. Only one mother was interriewed from each household.

TABLE 4.29   MOTHERS' ATTITUDES TO CHILDREARING:
PROPORTION (PERCENTAGE) OF MOTHERS WHO
GAVE POSITIVE RESPONSES TO GROUPS OF
STATEMENTS, BY EDUCATION AND OCCUPATIONAL CLASS

Occupational Class	Education	Less than 10 years of schooling	10 years or more of schooling	ALL
Wage labour		A: 85.0 (2) B: 100.00 C: 15.0 D: 70.0 E: 25.0	A: 66.7 (3) B: 100.00 C: 6.0 D: 100.0 E: 0.0	A: 82.6 (23) B: 100.0 C: 13.0 D: 73.9 E: 21.0
Self employed and others		A: 81.8 (11) B: 100.0 C: 6336 D: 100.0 E: 36.4	A: 100.0 (14) B: 100.0 C: 57.1 D: 78.6 E: 28.6	A: 92.0 (25) B: 100.0 C: 60.0 D: 88.0 E: 32.0
Salaried		A: 100.0 (6) B: 100.0 C: 33.3 D: 100.0 E: 33.3	A: 85.7 (14) B: 100.0 C: 42.9 D: 92.9 E: 57.1	A: 90.0 B: 100.0 C: 40.0 D: 95.0 E: 50.0
Remittances		A: 100.0 (2) B: 100.0 C: 50.0 D: 50.0 E: 50.0	A: 87.5 (8) B: 100.0 C: 50.0 D: 87.5 E: 37.5	A: 90.0 (10) B: 100.0 C: 50.0 D: 80.0 E: 50.0
ALL		A: 87.2 (39) B: 100.0 C: 35.9 D: 82.1 E: 30.8	A: 89.7 (39) B: 100.0 C: 46.2 D: 87.2 E: 38.5	A: 88.5 (78) B: 100.0 C: 39.7 D: 84.6 E: 34.6

CODE: A: AWARENESS OF CHILDHEALTH STATUS
B: BREASTFEEDING
C: CARE OF SICK CHILDREN
D: ARTIFICIAL FEEDS AND WEANING FOODS
E: IMMUNISATION

Numbers in brackets indicate number of household in each category. Only one mother from each household was interiewed.

TABLE 4.30 MOTHER'S ATTITUDES TO CHILDREARING:
PROPORTION (PERCENTAGE) OF MOTHERS
WHO GAVE POSITIVE RESPONSES TO GROUPS
OF STATEMENTS, BY THEIR OWN EDUCATIONAL
STATUS AND EDUCATION OF HUSBANDS

EDUCA-TION OF FATHER	EDUCA-TION OF MOTHER	Less than 10 years of schooling		10 years or more of schooling		ALL	
Less than 10 years of schooling		A: 86.7 B: 100.0 C: 26.7 D: 80.0 E: 26.7	(30)	A: 66.7 B: 100.0 C: 55.6 D: 100.0 E: 0.0	(9)	A: 82.1 B: 100.0 C: 33.3 D: 84.6 E: 20.5	(39)
10 years or more of schooling		A: 88.9 B: 100.0 C: 55.6 D: 88.9 E: 44.4	(9)	A: 96.7 B: 100.0 C: 43.3 D: 83.3 E: 50.0	(30)	A: 94.9 B: 100.0 C: 46.2 C: 84.6 E: 48.7	(39)
ALL		A: 87.2 B: 100.0 C: 33.3 D: 82.1 E: 30.8	(39)	A: 89.7 B: 100.0 C: 46.2 D: 87.2 E: 38.5	(39)	A: 88.5 B: 100.0 C: 39.7 D: 84.6 E: 34.6	(70)

CODE: A: AWARENESS OF CHILD HEALTH STATUS
B: BREASTFEEDING
C: CARE OF SICK CHILDREN
D: ARTIFICIAL FEEDS AND WEANING FOODS
E: IMMUNISATION

Numbers in brackets indicate number of households in each
category. Only one mother was interviewed from each
household.

CHAPTER V

SUMMARY AND CONCLUSIONS

There are some regions in the developing world, Kerala being one of them, which have achieved remarkable improvements in the health status of their populations, especially of children, in spite of low economic development. Several social scientists have examined this apparent paradox from different points of view and using different methodologies. In Chapter I we have attempted a review of the recent contributions on the relationship between economic development and child health status.

In Chapter II, we have attempted to critically examine the various explanatory hypotheses for Kerala's remarkable achi- evement in child health status compared to other Indian states, and in general, other developing countries. These hypotheses range from greater autonomy and decision making power of the woman in the family, and greater social investments in promoting health care and education, to the radical ideological climate which favours the rights of everyone to basic educational and medical needs. In the process, we have also seen how some of these actually fall short of explaining how these various influences are translated at the community and household levels into specific actions which govern positively the health and morbidity status of children. It is against this background

we proposed to conduct an in-depth study of the child health status and important variables which determine this in a selected village in Kerala.

In Chapter III we have set out the findings from two bench-mark surveys in the sample village of Nattika, which analysed the general demographic features of the village, as well as the health and nutritional status of children 6 months to 6 years of age, and some of the important correlates of health status. From these surveys it emerged that though the village is characterised by a generally poor level of income and consumption, the health and nutritional status of the children were comparatively good. The accessibility, and presumably, the utilization of health care facilities were good, and this perhaps explained partly why the health status of the children was generally good. It was also found that the infant mortality rate, and the rate of population increase in the village, were low, in conformity with most rural regions in Kerala.

In Chapter IV is set out the methodology and results of the detailed survey of a randomly selected sample of households in the village, which was undertaken to study the impact, at the household level, of the various specific factors affecting child health status in a positive or negative manner. In Chapter I we had posed the question whether 'more favourable social conditions like better levels of women's education, by making for a better utilization of

the health services sector, in effect contribute to reducing the depri- vation in living conditions that is characteristic of extreme poverty'. The answer that emerges from the survey seems to be a qualified 'yes'. On the one hand, there is evidence to show that the accessibility and utilization of health care facilities is high in the village, and with regard to certain aspects of utilization, antenatal care and birth in hospital, the differences between occupational classes are minimal. But on the other hand, this statement should be qualified in two aspects. Firstly, there is evidence to show that poverty is still a barrier for some sections in fully utilizing the state - provided free health care services. Secondly, though most of the poorer sections do utilize the government health care facility, there is evidence that the 'perceived' quality of care in these institutions leave much to be desired. (We have not gone into the question of whether there is a real difference in quality between the different institutions of health care). These two aspects emphasize the fact that the medical care that some one receives is still very much dependent upon his or her income and social class.

The findings of the survey itself indicate which of the socio- economic factors, acting at the individual, household, and community levels, have been important in governing the health status of the children in the study area.

Community level variables: The community level variables that have been discussed by Mosley and Chen are ecological setting, political economy and health system. The first of these has not been examined in this survey. The importance of radical ideologies in shaping the policies of successive governments in Kerala has been discussed.In the village itself, we have seen that there are adequate number of health care institutions, and these are put to great use by the people. The influence of education stems partly from the provision of educational institutions by the state, and the general value given to education by the community. Thus from indirect evidence we can infer that state policies of providing education, health care etc. free of cost and easily accessible, have had their impact on the health status of children. On the other hand, this could also be a reflection of the greater awareness of the people of their rights in these areas.

Household level variables: The most important household level variable was seen to be income or wealth. One of the important aspects of income differentials, namely the differences in the intake of nutrients, has not been quantified in the study. But there is not any reason to believe that any of the occupational groups suffers from an inadequate intake of nutrients. Greater income plays a part in the quantity and quality of food intake, as well in the greater utilization of curative services. Thus income may be a critical factor

in making the medical interventions prompt. To this extent, the poorer households may suffer a degree of deprivation: this is compounded by the fact that children in the poorer households are more prone to illness episodes, perhaps because of their poorer living conditions, as we have seen in an earlier chapter. Poverty also stands in the way of many families in providing their children with promotive and preventive aspects of child care, such as boiling of drinking water, consumption of protein foods, immunisation etc.

Greater income, on the other hand, also seems to have msome negative effect on the children's health, as we have seen from the survey. There is the erosion of traditional practices like breast-feeding induced by the wrong consumption patterns, which is partly the effect of increasing income. There is also the greater demand for private medical care with increasing incomes. While one cannot say that private medical care is inferior in quality, it is obvious that for the same category of care, with increasing preference for private care among the households, the cost of care will be higher than that in government hospitals. Thus the cost of medical care to the community as a whole is likely to go up as a result of this tendency. In part this is also a demonstration of the dissatisfaction with the conditions in the government health institutions.

Individual level variables: These perhaps have been found to have the strongest influence in the village sample. There is a

universal adherence to traditional feeding practices like breast feeding and early weaning, which is a positive influence. Equally important is the acceptance of the small family norm, with only minor differences across community and educational groupings. Fewer number of children improves the mother's own health, as well as increasing her time available for each child, which are important inputs into greater child health.

Education, perhaps the most discussed variable at the individual level in improving child health, seems to act in ways which have not perhaps been highlighted much in other studies. One of the important effects it has on the mother is an indirect one, by delaying the age of marriage and thus avoiding teenage pregnancies and consequent infant mortality. Education of the mother in general seems to promote many positive attributes like boiling of drinking water, taking the child for immunisation etc. We have also found that even in poorer families, the mother being educated is an important factor in the children being nutritionally in the same category as children from more fortunate households.

We have also seen the importance of father's education in positive child rearing practices. Most studies suggest that father's education acts through income : better educated fathers have better incomes. We have shown that at least in two aspects, the father

has a greater role to play than has been previously recognised.

1. Father's education seems to act like a 'priming' influence on the role of the mother. In other words, an educated mother in a family where the father is not educated, is not able to influence the decisions regarding child health positively. But in a family where the father is educated, the mother with education seems to have a greater role to play in making decisions about children.

2. Apart from this, father's education seems to have strong influence on certain preventive practices like immunisation. In fact, we have seen that even the mother's attitude about immunisation is more positively influenced by the father's education than her own educational status.

Another important fact about education is a variable in determining child health status that has emerged from this survey is that education alone is not a sufficient condition in attaining satisfactory levels of certain preventive and promotive aspects like immunisation and the use of boiled water for drinking etc. There is no evidence from this survey to indicate that such practices have been important in promoting better child health status in the village.

Suggesting further policy: There are at least three areas which the survey has identified, where policy intervention can

produce results in the form of better child survival and quality of life:

1. Specific efforts at health education, to promote the acceptance of immunisation, the use of good quality water, etc.

2. Better living conditions for the people: It can certainly be said that better sanitary surroundings and living conditions for the poorer sections in the village would lead to at least a reduction in the morbidity in the children, if not the mortality.

3. Improving the 'perceived' quality of care in the government health institutions, and making them more accessible to the poorer sections of society. Even though these services are free of cost, we have seen how certain sections are unable to use these. We have also seen how with increasing incomes, people seem to prefer private medical care. While this may ultimately not be detrimental to the health status of the children, it is certainly going to drive up the cost of medical care in society.

There is finally one important aspect that has not been discussed at all here: the impact of the working mother on child health. There is a only a negligible number of women in the sample households who are regularly employed. This is perhaps true of

most Kerala villages. The question whether, with increasing indus-
trialisation, there would arise a situation where most mothers are
regularly employed, and whether in a such a situation the quality
of child care is likely to come down and child health status likely
to deteriorate, remain largely hypothetical. But even in such a
situation, there remains the possibility that society would evolve
alternate, effective methods of child care.

To conclude, we have found that social investments are
perhaps equally or more important than economic growth in deter-
mining the quality of life of the people, in underdeveloped communi-
ties. But we have also found that several social factors are
contributing towards actually shaping the health profile of a
community, one of the most important of which would be the position
of women in society. This should be as much a policy lesson for
communities in the transitional stage as it has been a historical
fact in Kerala.

Appendix 1

TABLE 1   EXPENDITURE ON EDUCATION IN KERALA AND PROPORTION
             OF TOTAL REVENUE EXPENDITURE

Rs. Lakhs

(1)		(2)	(3)	(4)		
Year		Expenditure on education	Development Expenditure	Total revenue Expenditure	% (2)/(3)	% (2)/(4)
1957-58		997	2,282	3,291	43.70	30.29
1961-62		1,855	4,389	5,934	42.30	31.26
1971-72		6,609	13,026	18,651	50.74	35.44
1981-82		24,251	55,240	75,450	44.00	32.14
1982-83		26,697	56,051	78,340	47.63	34.08
1983-84		30,975	69,948	99,244	44.28	31.21
1984-85		34,897	79,460	1,13,866	43.87	30.65
1985-86	RE	41,506	1,04,979	1,44,190	39.54	28.79
1986-87	BE	46,777	1,03,194	1,52,099	45.31	30.75

RE : Revised Estimate

BE : Budget Estimate

Source : Department of Economics and Statistics
           Trivandrum

           Government of Kerala 1986

           Progress of Kerala in three Decades
                              1956-1985

                          p 26.

Appendix 1.

TABLE   2   PERCENTAGE OF BIRTHS TAKING PLACE IN
MEDICAL INSTITUTIONS, KERALA AND INDIA,
1964-65 to 1978

Rural/Urban	1964-65	1972	1974	1976	1978
KERALA	12.9	25.1	28.2	33.9	48.8
RURAL INDIA	3.0	7.8*	NA	10.7	15.6
KERALA	32.0	52.8	59.0	59.9	63.5
URBAN INDIA	30.0	32.2*	NA	38.8	50.9

* - Refers to 1971

Source: '64 - '65   ≟ NSS 19th Report No. 177
'72 - '78   - Registrar General of India 1981 (a)
Survey of Infant and Child Mortality

Appendix I

TABLE 3   INFANT MORTALITY RATES IN SOME STATES : 1983

No.	STATE	TOTAL	RURAL	URBAN
1.	ANDHRA PRADESH	77	83	54
2.	ASSAM	94	95	70
3.	GUJARAT	106	120	71
4.	JAMMU KASHMIR	71	77	46
5.	KARNATAKA	71	80	41
6.	MADHYA PRADESH	125	135	76
7.	MAHARASHTRA	79	91	54
8.	ORISSA	126	131	73
9.	PUNJAB	80	84	69
10.	UTTAR PRADESH	155	166	100
11.	WEST BENGAL	84	93	48
12.	TAMIL NADU	87	100	59
13.	KERALA	33	35	26
	ALL INDIA	105	114	66

Source : Sample Registration Bulletin
Vol. XX, No.1. June 1986

Appendix 1

TABLE 4 ESTIMATES OF NET DOMESTIC PRODUCT OF
VARIOUS INDIAN STATES AT CONSTANT PRICES
(BASE 1970-71 = 100)

STATE	Per capita Rs.				
	1970-71	1980-81	1981-82	1982-83	1983-84
ANDHRA PRADESH	585	649	719	709	756
GUJARAT	829	905	952	920	905
HARYANA	877	1058	1082	1126	1127
KARNATAKA	647	687	717	697	715
MAHARASHTRA	783	965	991	1017	1069
PUNJAB	1070	1374	1463	1508	1524
WEST BENGAL	722	759	712	691	802
KERALA	594	659	688	727	750

Source: Ministry of Welfare
Government of India, New Delhi 1985:
The Child in India, a statistical profile.
p 670

Appendix 2

ATTITUDES AND AWARENESS : SCORE SHEET

The following is a list of statements. They are opinions and as such are neither right nor wrong. The response of the respondent is to be graded depending on the degree of agreement with the expressed sentiment.

A: Strongly agree B: Agree C: Ambivalent (don't know) D: disagree E: Strongly disagree.

A   Child health status awareness :

1) Children's health has in general improved than twenty years back.
2) Fewer children die now in childhood than before.
3) It is exclusive the parent's responsibility to look after children's health
4) The government has an obligation to provide better facilities for care of children like hospitals, balwadis etc.
5) It is always better, if you can afford it, to go to a better private hospital because children receive better care there.
6) The modern medicine system is unfit for childcare because it employs strong medicines
7) Poverty could be an important cause of ill health in children
8) The mother is the most important person in looking after the health of children
9) Intervention programmes, ie., balwadis, supplementary feeding etc. help to make the children healthier
10) Children of richer households are healthier than children of poorer households

B   Breastfeeding

1) Breastfeeding is the ideal way of feeding the baby
2) Nowadays since artificial feeds are available, women should be relieved from the responsibility of feeding the baby
3) Breastfeeding destroys the mother's health
4) Artificially fed infants are much more healthier than breastfed babies
5) Artificial feeding is much more expensive than breastfeeding
6) It is always better to have the baby (delivery) in the hospital
7) Home delivery can be safe, provided it is attended to by a trained person
8) Repeated pregnancies destroy the mother's health
9) It is dangerous to have a baby when the mother is too young
10) In home deliveries, it is important to cut the cord with a boiled knife

C   Care of sick children

1)   Children are generally unhealthy, and it is not unusual for them to be inactive and laid up
2)   When children are sick, they should be starved
3)   When children are sick, they should be given only liquids
4)   In order for children to be healthy, they should be given special foods like eggs, milk etc.
5)   Tonic foods like Horlicks etc. help children to be active
6)   Tonics prescribed by doctors are not necessary for children's health
7)   A child with diarhoea should be given a lot of fluids
8)   A child with diarhea should be taken to hospital and given intravenous fluids
9)   Repeated illnesses affect children's growth
10) A child who does not eat well will not be able to atted to his/her studies.

D   Artificial feeds and weaning foods :

1)   Artificial feeds, Amul, Lactogen etc. are better for the child because they are prepared with immense care in the factory
2)   Children of richer households are better off because they are fed on artificial feeds
3)   Artificially fed children are prone to recurrent illness
4)   A baby should be started on semisolids when he/she is three months old.
5)   The best weaning foods for the baby are the commercially available brands in the market
6)   Home preparations like ragi, wheat etc. are equally good or better than commercially available feeds
7)   As soon as the child start taking other feeds he/she should be taken off the breast
8)   Fruits and fruit juices are dangerous for children
9)   Children need more food because they are growing up
10) A one year old should be eating almost all food items that the adults eat.

E   Immunisations

1) Protective injections prevent the child from contracting serious illnesses
2) Protective injections can be sometimes dangerous
3) Protective injections are unnecessary
4) It is better for the child to have some of the contagious diseases like whooping cough and measles rather than protect them against them
5) Protective injections are very expensive
6) It is not necessary to take protective injections in the order in which the doctor prescribes them
7) By the age of three months, the baby is too young to have these injections
8) Protecting one child affords some protection to children in the neighbourhood
9) The government is not making available these protective injections to poorer people
10) You should not give the child injections when he/she is slightly indisposed.

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