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THE HEALTH AND MEDICAL SECTOR IN INDIA: POTENTIAL REFORMS AND PROBLEMS

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ABSTRACT

The economic reform process begun in India in 1991 has not significantly affected the health sector. The main problem afflictingthis sector occurs in 'the distribution of government health resourcesacross states, between rural and urban areas, among different levelsof health care and between preventative and curative care programs. The total volume of resources devoted to health is not the constraint to improving health conditions in India, as India spends considerably more on health as a percentage of its GNP than most other countries in Asia.

This paper finds that given the current level of resources available in the health sector in India, significant improvements in boththe equity and internal efficiency of health expenditure can he achievedby better targeting of government health expenditure to poorer states thathave high infant mortality rates. Currently, central government spending reinforces, rather than compensates for, inequalities in state government health spending. More importantly, improvements can be achieved by changing the current emphasis of the Indian health-care system from expensive second+-y/tertiary care and medical training/research to focusing more on primary health care, communicable disease programs and integratedchild nutrition and health programs.

Introduction

The economic reforms undertaken in India since 1991 have not yet touched the health sector in any meaningful way. However, if an important objective of the economic reforms being implemented is to increase efficiency and equity in the economy, the government will have to address problems in the health sector. A number of recent studies have convincingly demonstrated the large productivity Josses associated with poor health in such varied developing country settings as Sierra Leone, Sri Lanka, India and the Philippines (Strauss 1986, Deolalikar 1988, Sahn and Alderman 1988, Haddad and Bouis 1991). The income losses for agricultural households and the self-employed may be even greater, as these households cannot avail of sick leave that is normally available to salaried employees. The effects of chronic infections and morbidity on children are even worse, since they are more lasting. Infections severely reduce the absorption of nutrients in the body, thereby causing malnutrition. Malnutrition affects cognitive development and schooling performance adversely, both of which in turn depress future economic productivity. All of these effects have been well documented in the literature (Martorell and Ho 1984, Behrman and Deolalikar 1988).

The gains from improved health can be quite substantial. A pioneering study by Ram and Schultz (1979) concluded that declines in mortality in India during the 1960s — achieved largely via an impressive malaria eradication program — accounted for almost one-third of the increase in aggregate productivity in Indian agriculture. Other studies undertaken at the micro level hint at yet larger pecuniary returns from improved health. Thus, even from a purely economic perspective, health improvements deserve to be high on the iist of policy goats.

Role of Primary Health Services in Improving Health

Given the obvious importance of health improvements, a logical question is: what interventions are most likely to improve health outcomes? Inadequate public provision of curative and preventive health services, such as immunizations and prenatal care, are generally thought to be important factors contributing to poor health status and high mortality rates in developing countries. Indeed, the remarkable performance of countries like Sri Lanka, China and the Indian state of Kerala in achieving low morbidity and mortality rates in spite of their relatively low per-capita incomes is attributed largely to their success in expanding the breadth and improving the quality of primary health services.

However, the mere *provision* of primary health services is generally not sufficient to assure improved health outcomes. For the health care system to have a real impact on health status, individuals need to *utilize* the health services provided by *the* public or the private sector. Gish *et* al. (1988) and Gish (1989), among others, have argued that an average of three to four annual contacts per capita with the health services are adequate in achieving basic preventive health care goals. For instance, this level of contact with mothers and children assures a high level of immunization of the child population and proper monitoring of pregnancies and deliveries.

Health Situation in India

Available estimates suggest an impressive reduction in mortality in India during the last three decades. For instance, the infant mortality rate (IMR) fell by almost 40 per cent between 1965 and 1992 -- from 150 infant deaths per 1,000 live births to 79 (World Bank 1994). Yet India has significantly higher infant and maternal mortality rates than other low-income Asian countries, such as Viet Nam, Sri Lanka, China and Indonesia. Further, the relative decline in the infant mortality rate during the last 25 years has been much smaller in India than in these counties.[1]

The average infant mortality rate for India is somewhat misleading in view of the wide mortality variations across regions and between rural and urban areas. The infant mortality fate in the urban areas of the country was estimated at 61 per 1,000 live births in 1988, against the estimate of 102 in the rural areas in 1988 (Ministry of Health and Family Welfare 1990). Similarly, the infant mortality rate varies enormousiy across states – from a low of 28 in Kerala to a high of 123 in Uttar Pradesh (Ministry of Health and Family Welfare 1990).

Health Expenditure Levels and Trends

Expenditure on health is not only surprisingly high in India (relative to other countries at similar income levels) but has been increasing over time. For instance, Table 1 shows that

[1]For example, in China, Viet Nam and Sri Lanka, the infant mortality rate declined by nearly 70 percent between 1965 and 1992 (World Bank 1994).

aggregate health expenditure (by states and the central government) in India was 4.3 percent of GNP in 1987 — higher than that of any other country in Asia with the sole exception of South Korea. Nearly 60 percent of this was private health expenditure, with the remaining share being largely government health expenditure (35.6 %) and insurance (4.4%).

Further. government (central plus state) health expenditure per capita has been increasing in real terms secularly since 1974-78. In constant 1988-89 prices, per capita government health spending increased from Rs. 40.53 in 1974-78 to Rs. 75.06 in 1986-90 — an annualized increase of 5.3 percent. Since per capita GNP was not growing anywhere as fast during this period, government health spending as a proportion of GNP increased from 1.3 percent to 1.9 percent during this period

Is India getting its money's worth in the health sector? Unfortunately, the answer to this question is a resounding no. India's health achievements are not even remotely comparable to those achieved by countries whose governments spend significantly smaller amounts on health relative to their GNPs, such as China and Sri Lanka. The way in which government funds are spent on the health sector in India probably has much to do with the low returns that the government has obtained. The evidence that will be presented below clearly suggests that there is considerable inefficiency (and inequity) in the utilization of government health resources in India.

The remainder of this paper addresses some of the problems with the distribution of public and private spending on health in the country.

Regional Distribution of Government Health Expenditure

Interstate Differences. Government health expenditures are unevenly distributed across states. In 1986-89, for instance, Bihar and Uttar Pradesh spent less than Rs. 45 per person on health, while Gujarat, Tamil Nadu and Rajasthan spent more than Rs. 90 per person (Tulasidhar 1992).[2] The reason for the inequitable interstate distribution in government health expenditures has to do with the nature of public financing of health care in India. Because the bulk of public spending on health is undertaken by the states, there is a strong positive correlation between state government health expenditures and state domestic products. Governments in high-income states are able to spend more on health because of their greater revenue collection. But what makes the distribution worse is that central government contributions to state health spending are based on matching grant formulas that reward states that are already spending more on the health sector. Thus, instead of compensating, the central government reinforces interstate differentials in health spending.

Analysis of health expenditure data compiled by Tulasidhar (1992) for 15 states over four time periods (1974-78, 1978-82, 1982-86 and 1986-89) reveals an inverse association between infant mortality rates (IMRs) and per capita state government health expenditure (Figure 1). There is no doubt that this inverse association reflects the impact of additional government health spending on health improvements and infant mortality reduction. However, it also reflects the fact that states that have higher infant mortality rates continue to spend less on health activities

[2]These data have been compiled by Tulasidhar (1992) from various issues of the *Detailed Demands for Grants.*

despite the fact that the marginal impact of government health spending on infant mortality reduction is greatest for states that have high IMRs and low levels of government health spending. For instance, regression of infant mortality rates on state government health expenditure data reported in Table 2 results in the estimation of the following equation:

$$IMR_{it} = 227.66 - 3.512 * GHLTEXP_{it} + 0.021 * (GHLTEXP)^2_{it},$$
$$(4.5) \qquad (3.6) \qquad (2.8)$$

where IMR_{it} is the infant mortality rate in state i at time t and GHLTEXP is per capita government health expenditure (in constant 1988-89 Rupees). (Numbers in parentheses are absolute values of t-statistics.)

The above results suggest that an additional rupee of government health expenditure reduces the IMR by 2.67 for a state spending Rs. 20 per capita on health (and having an IMR of 166), while the corresponding reduction in IMR for a state spending Rs. 100 per capita on health (and enjoying an IMR of 86) is only 1.4. Thus, an additional rupee of public health expenditure saves more infant lives if it is targeted to high-IMR states that have low government health expenditures per capita. Such targeting increases the overall internal efficiency of government health expenditure.

Rural/Urban Differences. In addition to the interstate differences, there are major rural/urban disparities in access to health services. While it is difficult to allocate government expenditures separately by rural and urban areas, Rao, Kahn and Prasad (1987) have calculated

that, in 1983, 41.1 percent of state government health spending in India was concentrated in urban areas, where 23.3 percent of the population lived.[3] Only 18.6 percent of state government health funding was directed to rural areas, while 40.3 percent of expenditure was not apportionable to either rural or urban areas. The targeting of central government health expenditure to rural areas was even worse; less than 1 percent of central health spending was targeted to rural areas and 55 percent allocated to urban areas. Thus, 44 percent of overall (state and central) government health and family welfare expenditure benefitted 23.3 percent of the population (i.e., the urban population) in 1983, which meant that each urban resident received 2.3 times the public health resources available to each rural resident;'

A recent detailed study of government health and famiiy welfare (H&FW) expenditures at the district- and municipality-levels for four states — Gujarat, Tamil Nadu, West Bengal and Uttar Pradesh — found that average H&FW expenditures per capita in urban municipalities (in 1990-91 and 1991-92) were 2.5 times the corresponding expenditures at the district level (Vashishtha *et al.* 1994). The highest degree of "urban bias" in the allocation of resources to health was found in Tamil Nadu and the lowest in Gujarat. Of course, to the extent that government H&FW expenditures are dominated by expenditure on urban-based hospitals, many of which are also used by rural patients, the extent of urban bias in government health expenditure may be overstated. Yet the reason why patients in the rural areas visit urban hospitals is because these areas lack decent medical care opportunities.

There is some evidence, however, that the distribution of government health expenditure appears to be shifting toward the rural sector. Tulasidhar (1992) reports that, with the exception

[3]For changes since 1983, see the discussion below.

of Andhra Pradesh and Tamii Nadu, most States spent between 20 and 30 percent of their health budgets on rural health facilities in 1988-89.' If one iooks at disaggregated budgetary data, expenditure on primary health centers and rural dispensaries as a percentage of the Medical Relief budget increased in nine out of ten states for which time-series data are available. The increase in the allocation of PHCs has been quite pronounced since 1982. Again, since infant mortality rates are much higher in the rural areas than in the urban areas, it is likely that targeting government health expenditure to rural areas will raise the internal efficiency of government health spending.

Functional Distribution of Government Heaith Expenditure

Labor Input Mix. There appears to be a serious distortion in the labor input mix found in the Indian health delivery system. After South Korea and China, India has the largest supply nf physicians per capita in Asia (Griffin 1992). In the mid-1980s, for instance, India had 389 physicians per million population, as compared to 346 for Malaysia, 156 for Thailand, 149 for the Philippines, and 102.9 for Indonesia.[5] On the other hand, India had only 15 nurses, midwives and medical assistants per million population in the mid-1980s, as compared to 159 for Malaysia, 145 for Thailand, 104 for the Philippines, and 231 for Indonesia (Griffin 1992). This makes India's ratio of nurses to physicians and of nonphysician personnel (viz., nurses,

[4]Both Andhra Pradesh and Tamil Nadu spent between 14 and 15 percent of their health budgets on rural health programs (Tulasidhar 1992).

[5]In comparison, the United States had 2,381 physicians, and Austria 4,348 physicians, per million population in 1990 (World Bank 1994).

midwives and health assistants) to physicians among the lowest in Asia. These low ratios reflect the Indian health delivery system's heavy emphasis on secondary rather than primary health care, and raise the question of efficient use of labor inputs in the health sect&, since physicians tend to cost significantly more (and offer more sophisticated services) than other health personnel to train and to function.

Primary, Secondary and Tertiary Care. There is also strong evidence that the distribution of central and state government health spending among primary, secondary and tertiary care is highly distorted towards secondary and tertiary care in India. While, as noted earlier, India spends a larger proportion of total government expenditure on health than many other countries in Asia, some 71 percent of the total health budget is spent on secondary and tertiary hospitals (Griffin 1992: 68). This means that primary health clinics, which form the backbone of rural health services, and public health programs receive less than one-third of total health resources.

The picture at lower administrative levels is no different. The survey of government health expenditures at the district level in four states referred to earlier found that public health accounted for only 24.3 percent of non-capital health expenditure (excluding expenditure on family welfare). In the municipalities surveyed, public health expenditure accounted for an even smaller share (15.1 percent) of current health expenditure (Vashishtha et *al. 1994).*

This functional distribution of health expenditure is inequitable, since primary health centers and public health activities generally serve a larger number of people, many of whom are poor, while secondary and tertiary hospitals cater to a much smaller population that is typically better off. The distribution of health expenditure is also allocativeiy inefficient for two

reasons. First, the cost of curative health services per additional life saved can often be up to eight times greater than that of preventive services, such as maternal and child health (MCH) care, and up to twenty times greater than the cost of communicable disease control programs (De Ferranti, 1985). Second, economic theory suggests that governments *should* subsidize activities of a public-goods nature, such as communicable disease control programs, for which there is typically low private willingness to pay, and should not subsidize activities of a private-goods nature, especially for middle- and high-income patients, such as curative care in hospitals. Admittedly, hospitals are a necessary part of referral systems and are bound to cost more than health centers because they treat the most difficult cases; however, the existing allocation of health resources between hospitals and primary health care in India is too unbalanced.

In India, the large allocation to secondary/tertiary care hospitals in India has resulted in an extraordinary large amount of expenditure per government hospital bed, particularly when compared to other low- and middle-income countries. While cost-accounting data on government hospitals are hard to come by, it is possible to obtain a rough estimate of expenditure per government hospital bed by multiplying total government health spending by the fraction going to hospitals and dividing the result by the number of government hospital beds. No doubt, this is a crude estimate. To the extent that hospitals provide outpatient care, the figure derived above will overstate the actual expenditure per inpatient day. The figure is also overstated by the common practice of including medical training and research expenses in government hospital expenditure in many countries. But since these practices are common to most countries in Asia, a cross-country comparison of average government expenditure per hospital bed is not entirety groundless. Figures obtained this way for 12 Asian countries are

reported in Table 3. The data in this table make India appear more like a low-mortality, high-income country (for example, South Korea) in terms of its expenditure on the hospital sector. With the exception of South Korea and Malaysia, India has the highest absolute expenditure per government hospital bed (US$6,650) among Asian countries. This means that India spends a staggering 23 times its per capita income to support each government hospital bed every year — significantly more than even South Korea and Malaysia!

Private Medical Expenditure

Because government health spending is tilted in favor of the nonpoor, the poor have to spend proportionately more on their own for their medical needs. Using data from a national probability sample health survey (called MISH) conducted in 1990,[6] annualized (extrapolated from a two-week recall period) household medical expenditures were calculated for different income groups. The results, which are reported in Table 4, show that the lowest-income group (those earning less than Rs. 12,500 per annum) spends an astounding 24.1 percent of its annual income on medical visits. On the other hand, the highest-income group (those earning more than

[6]This survey, called the Medical Module of the All-India Market Information Survey of Households (MISH), was conducted by the National Council of Applied Economic Research (NCAER) in 1990. The survey obtained information on illness episodes that had occurred among individuals in 18,102 households in the two weeks preceding the survey. Respondents were asked to select among a list of nine possible symptoms that were associated with their illness. In addition, information on how and where the illness was treated, the cost of treatment (by various components — fees, drugs, surgery, transport, etc.), and the distance to the health provider was also obtained. The questionnaire was canvassed from 18,102 households residing in 21 states and union territories of the country between May and July of 1990. A multi-stage stratified random sampling design was used to select the sample households.

Rs. 56,000 per annum) spend merely 3.4 percent of its income on medical visits. These are obviously rough estimates, since they are based on two-week recall data on reported illnesses. However, they underscore the fact that because of the virtual absence of health insurance to cover routine or catastrophic illnesses, especially for the poor, the latter have to rely on their own limited resources for coping with unanticipated health problems.'

Utilization of Medical Services

Table 5, which presents information on the choice of providers by income group from the MISH household survey, shows that over one-half of the sampled individuals reporting an illness obtained care from hospitals and nursing homes — facilities that are supposed to provide inpatient care. Since it is virtually impossible for such a large proportion of illnesses to require inpatient care, it follows that most individuals obtain outpatient care from facilities that are primarily intended for inpatient care. This in turn implies that the referral system, in which an individual first visits a primary health center (PHC) or private clinic and is then referred to successively higher levels of care, is not working. This may indicate that individuals have little faith in the ability of the grass-roots outpatient facilities to help them with their medical problems. Indeed, Table 5 suggests that only 4-12 percent of treated illness episodes are treated at primary health centers, depending upon rural/urban residence and income class.

[7]The Employees State Insurance Scheme (ESIS) only covers government employees and salaried workers in the organized sector, who typically belong to middle- and high-income groups.

Another surprising result that emerges from an examination of Table 5 is that the poor appear to rely less on primary health centers than the nonpoor. For example, only 8.0 percent of rural individuals in the low-income group, but 11.7 percent of high-income individuals, experiencing an illness episode sought treatment from a PHC. The low rates of utilization of primary health centers, especially by the poor, should be a matter of concern, since the PHCs are primarily supposed to serve low-income individuals and households.

Price of Medical Services

The true price of medical services has been calculated from the MISH household survey by purging both the (disease-specific) complexity and the (consumer-chosen) quality effects from observed amounts paid by individuals for each illness episode. Much of the previous work on medical care demand has confounded the price, quality, and disease-specific variations. These prices are shown by rural/urban areas of the entire country in Table 6 and by state in Table 7.[8]

There are two observations that emerge from an examination of Table 6. First, as one would expect, medical-care prices are significantly lower at government than at private facilities. As can be seen from Table 6, care at private clinics costs 26 percent more than at PHCs for urban residents and 37 percent more for rural residents. The difference between prices charged by private and government hospitals is even greater; private hospitals and nursing homes cost 40 more for rural residents and 53 percent more for urban residents.

[8]See Deolalikar and Vashishtha, 1992, for a detailed explanation of how the prices were derived.

Second, after adjusting for cost-of-living differences, medical services from all types of health providers, including government facilities, are significantly more expensive for rural than for urban residents. Table 6 indicates that rural residents, on average, pay 44 percent more than their urban counterparts for services obtained from PHCs.[9] Among inpatient facilities, the urban-rural price differential is larger for government institutions (36 percent) than for private hospitals and nursing establishments (25 percent). Higher medical-care prices in the rural areas probably reflect the inadequate supply and relative shortage of medical services and health-care providers in these areas.

The average (over rural and urban) prices of care from five types of health providers vary a lot across states.[10] Table 7, which presents the average prices of medical care in 18 major states, shows that prices charged by all health providers, whether public or private, appear to be unusually low in Kashmir and Himachal Pradesh; lower than average in Gujarat, Haryana and Kerala; above-average in Bihar and Rajasthan, and very high in Andhra Pradesh and Assam.

What accounts for the variation in medical-care prices across states? To answer this question, the medical-care prices constructed and reported in Table 7 were regressed on certain state-level variables that reflect the availability of medical facilities and medical infrastructure. The regression results (reported in Table 8) indicated a strong negative effect of state

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[9]Note that these price comparisons refer to prices that are purged of quality; the quality-unadjusted expenditures per illness episode either do not vary significantly across rural and urban areas or are higher in the urban areas. However, once there is control for the fact that urban residents, who typically have higher incomes and better education, pay more for higher quality services, the true price of medical services facing rural residents is in fact higher.

[10]Average prices could not be calculated for smaller states due to insufficient number of observations over which to compute means.

government (recurrent) health expenditures per capita on the prices charged by most types of he&h-care providers (with the single exception being medical-care prices at private clinics), with an additional rupee spent in recurrent health activities and programs by the government being associated with reductions of Rs. 0.69, Rs. 0.93 and Rs. 0.72 in medical-care prices at government hospitals, private hospitals and PHCs, respectively. The empirical results also showed an inverse — although, for the most part, statistically insignificant — association between per capita income of a state and medical-care prices in that state. Finally, the results indicated that, controlling for popufation size, a larger supply of medical facilities (viz., the number of hospital beds and the number of primary health centers and subcenters) in a state was associated with lower medical-care prices, although this relationship too was not statistically significant owing to the small size of the sample. All of these resuits clearly imply that medical infrastructure, government health expenditures and the general standard of living in a community all serve to *reduce* the real cost of medical care for consumers. Conversely, consumers face higher prices for medical services in states that have poor medical infrastructure, low levels of government spending on health, and low per capita incomes.

Role of the Pharmaceuticals Industry

The pharmaceuticals industry can play an important role in preserving and improving the health of a nation. However, there are two conditions for it to be effective: first, its products have to be easily available and affordably priced, and, second, its product mix must match the

disease pattern of the population. How does the Indian pharmaceutical industry perform on these two counts?

The Indian pharmaceuticals industry is one of the most advanced among less-developed countries (Agarwal 1978). India also ranks as the largest producer of pharmaceutical products in the developing world, after Brazil. A total of over 15,000 branded drugs are produced in India, and imports constitute only 7.8 per cent of total production. In addition, multi-purpose plants to manufacture drugs are themselves being manufactured and even exported by Indian manufacturers (Agarwal 1978).

Although the Indian pharmaceuticals industry is the second largest in the developing world, the per-capita consumption of drugs in India is small. A committee of the Indian parliament estimated that the average annual per-capita consumption of modem drugs in 1975 was merely Rs. 6 (or about 1.7 per cent of per-capita income) and that only 20 percent of the Indian population used these drugs (Government of India 1975: 89). The small size of the Indian market in pharmaceuticals is the result of low incomes, combined with an unequal distribution of income and of health opportunities.

Further, the product mix of the Indian pharmaceuticals industry is ill-suited to the disease profile in India. This can be seen by comparing the distribution of Indian pharmaceuticals sales by therapeutic groups (reported in Table 9) against the disease pattern in the country (presented in Table 10). The most prevalent diseases in India are primarily parasitic (filariasis, malaria, dysentery). Leprosy and tuberculosis also are very common, the latter being a major killer, In contrast, cancer and heart disease are so uncommon as to not even figure in the distribution shown in Table 10. But the distribution of pharmaceutical sales by therapeutic groups indicates

that vitamins, cough and cold preparations, and tonics and health restorers constitute 22 per cent of the total pharmaceutical sales in India. Anti-tuberculosis drugs have a- market share that is equal to that of antacids and smaller than that of cardio-vascular drugs. Agarwal (1978: 39) reveals other interesting details about the Indian pharmaceuticals industry. ". . . Although malaria is a major disease in India, primaquine and triethoprim are not produced locally at all and imports of chloroquine exceed local production.. . . For many important drugs, installed capacities are far below licensed capacities. The actual utilization of the installed capacity is still less — only 12 per cent for anti-leprosy drugs and 14 per cent for thiacetazone (an anti-tuberculosis drug). "

There are two reasons for the inadequate production of essential drugs, First, the market for pharmaceuticals is largely made up by the urban middle class. The vast majority of the rural poor are simply beyond the reach of modem drugs. Hence, the pharmaceuticals industry responds to the ailments of the middle class, such *as* general fatigue, headaches, and constipation, rather than to the diseases afflicting the poor, such as leprosy, tuberculosis and filariasis.[11]

Another reason for the inadequate production of 'essential' drugs is related to past government policy. Until very recently, essential drugs were subject to strict price controls by the Indian government. This reduced the incentives for their production by the private sector. As part of the industrial'dereguiation that has occurred since 1991, the government has relaxed

[11] Admittedly, these are observations based on casual empiricism. There are no household or medical surveys conducted in India that throw light on the distribution of diseases or symptoms by income group.

many of the strictest bureaucratic controls on the pharmaceuticals industry. But it may take some time to undo the damage of past policies on this sector.

Integrated Child Health/Nutrition Programs

Closely related to health — particularly child health — is the issue of child nutrition. There is general consensus in the medical literature that high rates of neonatal and infant mortality and poor child health owes much to undernutrition among infants, children, and pregnant and lactating mothers (Martorell and Ho 1984, Behrman and Deolaiikar 1988). Because of the strong complementarities between good health and good nutrition, especially among children and pregnant women, there is often a strong case for integrated health/nutrition programs targeted to these groups (Berg 1987).

Integrated Child Development Services. In India, a national program that is directly targeted to child health and welfare is the Integrated Child Development Services (ICDS) program. Initiated in 1975, it has expanded rapidly and covers more than 1,300 blocks of approximately 100,000 population each (Dapice 1987). It is 'integrated' in that it aims to improve the nutrition and health of children O-6 years of age by simultaneously providing supplementary feeding, immunization and curative medical care to children and pregnant and lactating women, and health and nutrition education to mothers. However, the primary emphasis in the ICDS program is on providing meals. ICDS is sponsored by the Central Government but administered by the states. There is cost sharing between the Central Government and the

states. The backbone *of* the ICDS is the *anganwadi* which is a cominunity center where children and mothers gather to avail of ICDS services. While in principle there is both *program as well* as area targeting of ICDS benefits, in practice nutritional screening is rarely done to determine eligibility for supplementary feeding. Virtually, all of the targeting of benefits is achieved via location of ICDS projects in tribal areas and rural areas with a heavy concentration of scheduled (backward) caste households, where malnutrition problems are generally most severe (Subbarao *1988).*

While there are a large number of evaluation studies on the ICDS, most of these have looked at specific ICDS projects, and not at the program as a whole. The following appear to be the main conclusions of **these** studies (Subbarao 1988).

- The impact on child nutritional status varies widely from one ICDS project to another. As such, it is difficult to generalize from the successes or failures of individual ICDS projects.
- The coverage of children under three years of age in supplementary feeding and immunization efforts is low, since such children typically need to be brought to the *anganwadi* by a parent. The coverage of pregnant and lactating women is even lower. Thus, ICDS fails to prevent many preventable child deaths, such as those that occur in early infancy and those that are attributable to poor maternal health.
- **Although** supplementary feeding is often uneven because of erratic food supplies received by the *anganwadi* center, it attracts mothers and children to the center where they can then avail of other important services of the package.

- There is little community participation in the ICDS program. Hence, ICDS is viewed by potential beneficiaries more as a government center than as a community center.
- Although coverage of rural areas has been increasing rapidly, the ICDS, like the PDS, has a strong urban bias (Dapice 1987).
- Although it is supposed to be a *supplementary* feeding program for *undernourished* preschool children, in practice the ICDS provides a replacement noonday meal to *all* preschool children who come to an ICDS center. The lack of targeting in the program. as well as its tendency to make beneficiaries dependent on food assistance for extended periods, limits its coverage of the truly needy and its sustainability over the long run.

Despite these shortcomings, Subbarao (1988: 59) concludes that ".. ICDS is a well-conceived program reflecting a bold and innovative approach; many of its observed ills can be removed by effective implementation; and the observed failure in eliciting community participation is not peculiar to ICDS but evident in other welfare programs such as the IRDP [Integrated Rural Development Program]."

Tamil Nadu Integrated Nutrition Project. In contrast, the Tamil Nadu Integrated Nutrition Project (TINP), initiated in 1980 by the Government of Tamil Nadu with financial assistance from the World Bank, has been one of the most successful nutrition intervention programs in India and *in* the world (Berg 1987). TINP is *area, age,* and *need* targeted. It is confined to the

rural areas of six districts in Tamil Nadu that have the lowest 'caloric consumption in the state.[12] Only children 6-36 months of age, who account for 90 per cent of the pre-school deaths in the state, and pregnant and lactating women. are eligible to participate in the project.[13] Further targeting is achieved by monitoring the weights of all children 6-36 *months* old in the project villages, and enrolling only those children whose weight gain over a certain period falls below standard in a 90-day supplementation program that includes daily feeding and counseling of mothers. Since the children are on the supplementation program only for the duration of time their weight gain is below standard, the project is basically seen as a short-term intervention that seeks to reduce long-term dependence of beneficiaries on public assistance.

Often a problem with child supplementation programs is that parents reduce a child's allocation at home since they view the supplementation as a substitute for home consumption. TINP avoids this problem by serving snacks made from wheat to a population that often does not consider food not containing rice to be a meal. Community participation is achieved in the project by enlisting women in the project villages to assist in the preparation of the food supplement.

TINP links the delivery of health and nutrition services. Children who do not respond to the nutrition supplementation are provided health services, which include check-ups and referrals, treatment of diarrhea, deworming, and immunization. These services are also available to pregnant and lactating women. In addition, the program includes intensive counselling of mothers in nutrition and hygiene education.

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[12]These districts alone represented a population of 17.2 million (Berg 1987: 17).

[13]See Berg (1987), Dapice (1987) and Martorell (1987) for more details on the TINP.

Evaluation studies of the TINP have indicated dramatic effects. Berg (1987: 19-25) notes,

> "... by late 1986 preliminary findings .... pointed toward a 53 per cent decline in serious and severe malnutrition, down to 8 per cent of all children between seven months and five years old. Given what was happening to the economy during this period,[14] there is fairly strong evidence that without TINP malnutrition rates would have been from 14 to at least 18 per cent. (In the untreated area studied in 1986 serious and severe malnutrition was more than 20 per cent.) ... Children between ages four and five who had been through the program were a significant 1.75 kilograms (or 3.9 pounds) heavier than children from control villages. That the weight advantage was maintained two years after the children completed the program indicates the longer-run effects."

Dapice (1987: 5-7) has estimated the annual recurrent cost of the TINP in 1986-87 to be approximately Rs. 10 per person (not beneficiary) living in the target area. In contrast, Tamil Nadu's portion of the ICDS program costs approximately Rs. 22 per capita per year. The difference in cost arises almost entirely from the fact that the ICDS is a mass feeding program, while the TINP is highly-selective supplementary feeding program.

How do the benefits of the two programs compare? Although there are several conceptual difficulties in arriving at an accurate figure, Dapice (1987) estimates that the TINP has reduced severe malnutrition among the 6-36 month olds by twice as much as the ICDS in Tamil Nadu. Given the effectiveness of the TINP, can it be afforded by a poor country, such as India? According to Dapice (1987), expenditure on TINP constitutes less than 0.5 per cent of Tamil Nadu's GDP, 2.5 per cent of recurring state revenues, and 12 per cent of the total state

[14]Tamil Nadu had gone through a bad drought and severe economic difficulties during this period.

government expenditure on social and community services. These are relatively modest costs for a program that has reduced serious and severe malnutrition and related health problems among preschool children by over 50 per cent.

Potential Reforms and Constraints

The main, problem with the health sector in India is the *distribution* of government health resources — across states, between rural and urban areas, among different levels of health care (primary, secondary and tertiary), and between preventive and curative care programs. For once, the total volume of resources is not a major constraint. Indeed, as argued earlier, India spends considerably more on health (as a percentage of its GNP) than most other countries in Asia. In addition, government health spending constitutes about a third of total spending on health, which implies that government health projects and programs can leverage relatively high levels of private expenditure to achieve. goals in the health sector. It is unlikely, therefore, that the quantity of resources devoted to health is a major constraint to improving health conditions in the country.

This paper has focused on some of the major issues that need to be addressed. Better targeting of government health expenditure to poorer states that have high infant mortality rates will not only improve equity but also raise the internal efficiency of health expenditure. However, there is a built-in mechanism that will make it difficult to achieve redistribution of government health spending. The vast bulk of government health spending in India is undertaken by the States, and richer States that have low IMRs are simply able to spend more

on health programs. What could change is the manner in which the central government allocates its health grants to the States. Currently. central government spending reinforces — rather than compensates for — inequalities in State government health spending. There is a need to change the formula or basis on which States receive Center funding for health programs.

But perhaps the greatest failing of the Indian health-care system is its strong bias in favor of secondary/tertiary care and medical training/research. This has been achieved at the expense of primary health care, communicable disease programs, and integrated child nutrition/health programs, although there is some evidence to suggest that the emphasis on preventive and primary care has been growing in the 1980s. Some of this bias can be traced to the recommendations of the Health Survey and Planning Committee, headed by Sir Joseph Bhore, appointed by the Government of India in 1943. The Bhore Committee included its comprehensive recommendations in a long-term health plan for the country that could be implemented in a time period of 30-40 years. Although many of the Bhore Committee's numerical targets, in terms of access to health services, have not been realized even as of yet, it is instructive to examine the Committee's basic recommendations for the health sector, since these probably guided much of health policy in the early days.

Among the Bhore Committee recommendations were (i) elimination of the licentiate medical training course, with focus on a single 5-year instruction program to train a 'basic' physician; (ii) hospital-based health services, with all preventive, curative and rehabilitative services flowing from hospitals; and (iii') a system of referral (vertical) services from Lower to higher-level units for complete health care and supervision. Verma (1986: 10) has summarized the effects of these recommendations on the development of the Indian medical system:

> "Rise of specialties was the natural outcome of creation and expansion of teaching hospitals and the Bhore Committee recommendations. With this. was linked the demand for more sophisticated technology with consequent straining of resources for the basic levels. More and more resources were spent on development of prestigious advanced treatment centres than on general promotive and preventive measures which only helped the few and neglected the many. This also led to greater attraction for hospital jobs which in turn led to a serious competition for such jobs. Acquisition of post-graduate degrees became *sine qua nun* for hospital appointments.. . The 'basic' doctor produced by such institutions, therefore, remained more patient- than community-oriented.. . Such postgraduates were hardly suitable for rural areas where even primary health care was not available."

There is a good deal of evidence to suggest that a number of adult health problems have their origins in chronically poor health and undernutrition in childhood. Because of the strong synergies between child/maternal nutrition and health, integrated health/nutrition programs targeted to vulnerable groups, like children and pregnant/lactating women, are much more effective than traditional health interventions alone. Unfortunately, although India boasts of one of the most successful child nutrition/health interventions in the world — the Tamil Nadu Integrated Nutrition Program (TINP), such programs are generally underfunded in the country.

There is some evidence that the new health policy, formed in the aftermath of the Alma Alta Declaration, has attempted to reverse some of the bias in favor of curative interventions since 1982. However, unless deep-rooted changes in the medical curriculum, funding of medical education and structure of the pharmaceuticals industry take place, it will be difficult to reverse the strong bias toward secondary/tertiary curative care in the Indian medical system. It is likely that the well-established medical community in India will strongly resist any major changes in health-sector reform.

Table 1: Aggregate health expenditure as a percentage of GNP in selected Asian countries, latest year
(percent)

Country	Total health expenditure	Government health exp.	Year
Bangladesh	1.7	0.7	1987
China	4.0	0.8	1987
India	4.3	1.6	1987
Indonesia	2.4	0.9	1986
Korea	5.1	0.6	1987
Malaysia	3.5	2.7	1987
Myanmar	3.2	1.1	1986
Nepai	1.4	0.8	1987
Philippines	2.4	0 . 6	1987
Sri Lanka	2.3	1.3	1986
Thailand	3.8	1.1	1987

Source: Griffin (1992), p. 51

Table 2: Per Capita Expenditure on **Health** Sector, by State. 1974-78 to 1986-89

State	Total government health expenditure per capita in constant 1988-89 Rupees (four-year averages)			
	1974-78	1978-82	1982-86	1986-89
Andhra Pradesh	35.18	46.22	56.52	63.73
Assam	30.14	41.92	58.14	73.34
Bihar	17.76	26.77	31.70	38.21
Gujarat	43.29	53.67	70.02	92.95
Haryana	39.43	56.58	80.41	84.98
Karnataka	39.51	46.46	64.05	67.94
Kerala	57.34	72.15	82.62	86.74
Madhva Pradesh	32.53	42.41	58.06	71.76
Maharashtra	53.12	65.65	81.32	87.92
Orissa	31.19	44.05	55.87	66.24
Punjab	46.85	59.39	69.70	84.22
Rajasthan	49.46	68.50	103.04	100.78
Tamil Nadu	42.49	51.12	105.51	95.62
Uttar. Pradesh	21.56	28.73	38.00	45.82
West Bengal	47.36	56.62	61.90	60.23
All 15 states	36.43	46.87	62.65	68.91

Source: Tulasidhar (1992): 39.

Table 3: Expenditure on government hospital beds, most recent year *(estimated)*

Country	Expenditure per bed (US $)	Multiple of annual per capita. income per bed
Bangladesh	2,661	17
China	665	2
India	6,650	23
Indonesia	5,882	12
Korea	27,881	12
Malaysia	*13,474*	*7*
Myanmar	*1.122*	*6*
Nepal	*3,371*	*2 2*
Philippines	*2,658*	*5*
Sri Lanka	*1,508*	*4*
Thailand	*4,270*	5

Source: Griffin (1992), p. 74

Table 4: Annual Household Medical Expenditure, by Income Class, India, 1990			
Income Class	Annual Household Income (Rs)	Annual Household Medical Expenditure	
		in Rupees	as % of Annual Income
Less than Rs. 12,500 per annum	8,429.45	1,621.23	24.14
Rs. 12,501 - Rs. 56,000 per annum	29,295.49	1,946.00	7.57
More than Rs. 56,000 per annum	76,554.07	2,327.53	3.40

Table 5: Choice of Providers, by Income Class, India, 1990								
Provider	Urban				Rural			
	Income Class			All	Income Class			All
	Low	Middle	High		Low	Middle	High	
Government Hospital	37.3	31.8	23.8	33.6	32.3	26.3	16.7	30.4
Private Hospital/ Nursing Home	19.9	21.3	25.6	20.9	21.5	20.8	19.5	21.3
PHC	4.5	7.3	5.0	6.1	8.0	8.2	11.7	8.1
Private Clinic	22.8	21.9	28.9	22.5	20.3	23.1	39.4	21.3
Medical Shop	12.8	14.2	13.0	13.6	9.5	14.2	10.1	10.9
Others	2.8	3.6	3.8	3.3	8.4	7.5	2.6	8.1
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 6: Computed "Price" of Medical Care, by Provider, India, 1990[a]

Sector	Government Hospitals	Private Hospitals	PHCS	Private clinics	Others
Urban	92.44	141.23	93.80	117.99	90.74
Rurai	126.11	176.62	135.12	185.27	122.49
All	118.15	168.25	125.02	169.45	115.01

Notes: [a]All prices. represent the cost of a single visit and include all costs (e.g., fees, drugs, surgical procedures, etc.). The prices are purged of variations associated with quality of care and type of disease/ailment. They are also deflated for cost-of-living differences across states and across rural/urban arcas.

Table 7: Computed "Price" of Medical Care, by Provider and by State. 1990[a]

State	Gov't Hospitals	Private Hospitals	PHCs	Private Clinics	Others
Andhra Pradesh	169.07	240.34	125.92	379.69	229.45
Assam	146.61	261.84	215.99	302.11	213.12
Bihar	125.55	188.22	131.76	154.43	83.68
Gujarat	144.18	86.84	96.66	83.16	
Haryana	93.85	88.89	111.97	70.19	63.20
Himachal Pradesh	121.93	145.48	70.67	44.66	36.90
Jammu & Kashmir	73.04	47.18	55.95		82.06
Karnataka	148.27	172.69		90.47	140.98
Kerala	137.79	94.95		59.61	97.82
Madhya Pradesh	107.92	162.29	63.69	138.70	165.53
Maharashtra	91.49	159.93	111.69	98.07	93.82
Meghalaya	61.00	236.94	80.75	lfi1.13	63.45
Orissa	114.80	258.63	120.27	144.99	82.37
Punjab	167.32	189.16	119.09	89.77	113.68
Rajasthan	187.41	174.97		120.12	83.13
Tamil Nadu	54.11	123.55	75.27	106.48	66.68
Uttar Pradesh	72.80	102.71	76.49	86.68	79.62
W. Bengal	191.60	217.61	129.73	224.45	114.27

Notes: [a]All prices represent the cost of a single visit and include all costs (e.g., fees, drugs, surgical procedures, etc.). The prices are purged of variations associated with quality of care and type of disease/ailment. They are also deflated for cost-of-living differences across: *states* and across rural/urban areas.

Table 8: Regression Analysis of State-level and Provider-Specific Computed Prices of Medical Care, India, 1990

State-level independent variables	Price charged at: Gov't Hospitals		Private Hospitals		PHCs		'Private Clinics		Other Providers	
	Para-meter	T-ratio	Para-meter	T-ratio	Para-meter	T-ratio	Para-meter	T-ratio	Para-meter	T-ratio
Per capita state government expenditure on health 1986-87	-0.685	-2.127	-0.930	-2.075	-0.717	-2.418	0.517	0.55	-0.803	-2.06
Per capita net state domestic product (1980 prices), 1988-89	-0.005	-0.311	-0.040	-1.682	-0.009	-0.507	-0.071	-1.417	-0.029	-1.369
No. of hospital beds in state. 1990	0.000	-0.209	-0.001	1.493	0.000	0.243	-0.002	-1.067	0.000	1.5531
No. of PHCs and sub-centers in state. 1999	-0.007	-0.742	-0.026	-1.92	-0.003	-0.311	-0.049	-1.749	-0.016	-1.386
State population, 1991	0.597	0.366	3.710	1.633	-0.268	-0.142	8.380	1.761	2.250	1.13
Intercept	215.253	3.447	385.257	4.436	205.805	3.521	340.449	1.869	259.747	3.415
R-squared	0.282		0.392		0.400		0.354		0.340	
No. of observations	18		18		15		18		17	
F-Ratio	0.940		1.540		0.382		0.321		0.399	

Notes: Ordinary least squares on state-level data, using health-care prices reported in Appendix Table 1.

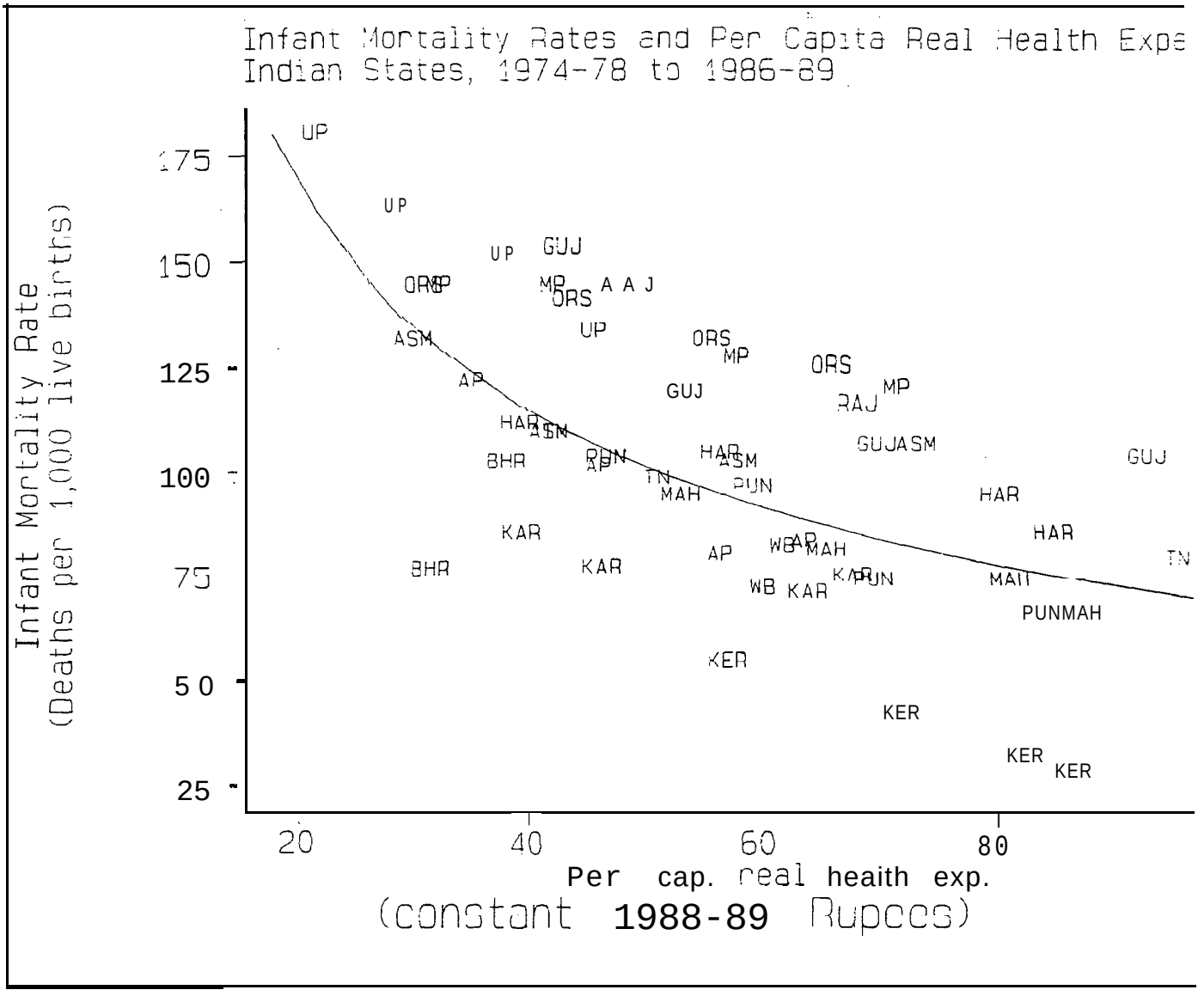
Table 9: Market Share of Some Therapeutic Drugs Groups, India, 1985		
Drug Group	sales (Rs. Crore)	% of Total Market
Systemic Antibiotics	249.02	21.15
Vitamins, tonics, mineral supplements	187.78	15.95
Cough and cold mixtures, nasal decongestants	**55.40**	**4.70**
Antiparasatic	46.78	3.97
Analgesics	44.29	3.76
Antacids	38.17	3.64
Anti-inflamatory and anti-rheumatic	53 .06	4.50
Anti-tuberculosis	30.39	2.50
Enzymes	24.69	2.10
Sex hormones	23.61	2.00
Source: Bal, 1986, p. 2009.		

Table 10: Cases and Deaths reported due to Various Diseases, India, 1973-74

Disease	No. of Cases	No. of Deaths
Filariasis	20,000,000	1,360,000
Dysentery	3,800,000	2,114
Leprosy	3,200,000	?
Influenza	1,643,142	101
Malaria	1,300,000	?
Gastroenteritis	799,199	3,514
Tuberculosis	340,052	5,530
Whooping Cough	198,094	304
Enteric Fever	190,997	1,343
Infectious Hepatitis	99,816	948
Gonocooccal Infection	90,544	55
syphilis	60,606	42
Measles	56,521	149
Tetanus	52,535	3,291
Chickenpox	34,067	30
Cholera	17,000	3,600
Rabies	14,187	151
Diptheria	11,437	444
Meningococcal Infection	11,052	283
Poliomelitis	6,435	143
Dengue and Haemorrhagic Fever	3,792	1,728
Encephalitis	?	1,728

Source: Central Drug Research Institute, 19'76: pp. 7-8.

Figure 1


Infant Mortality Rates and Per Capita Real Health Expe
Indian States, 1974-78 to 1986-89
Infant Mortality Rate
(Deaths per 1,000 live births)
175
150
125
100
75
50
25
20
40
60
80
Per cap. real heaith exp.
(constant 1988-89 Rupees)
UP
GUJ
ORS
MP
AAJ
ASM
AP
HAR
BHR
PUN
TN
MAH
RAJ
GUJASM
KAR
WB
KER
PUNMAH

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