# Changing Inequalities in Utilisation of Inpatient Care in Rural India: Evidence from the NSS

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Contrary to the widespread belief of increasing inequality in the health sector, this paper observes that economic status-related inequality in inpatient care utilisation has declined in recent years. However, a lowering of inequality has not made the situation more equitable for the poor because of a high increase in the rate of inpatient care utilisation, a decline in dependence on government hospitals and a steep hike in the cost of inpatient care. In a majority of states, the average cost of inpatient care, even at government hospitals, has grown at a much higher rate than the prices of essential food items. The hardships faced by the rural poor to meet healthcare expenses show that the net result has been a welfare loss for them.

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## 1 Introduction

There are a large number of studies, especially in the context of developing countries, which have examined inequalities in age-adjusted mortality rates, child mortality rates, incidence of chronic illnesses, and self-reported health status. Depending on the specific focus of each of these studies, they have examined the distribution of healthcare, variable across different socio-economic and demographic sections of the population. In addition, utilisation of healthcare services is often considered an important process indicator of healthcare systems. The unequal distribution of healthcare across a population may not always be due to differences in morbidity or the need for healthcare; rather it may often be the outcome of unequal access to healthcare by various segments of the population (Mooney et al 1991; Culyer et al 1992).

However, there are limited studies on the inequality in healthcare utilisation at the macro level in the Indian context and few have looked into the dynamics of inequality (Sen et al 2002; Selvaraj and Karan 2009). The National Sample Survey Organisation (NSSO) has collected detailed information on reported morbidity, and utilisation of and expenditure on healthcare in its last three health rounds – the 42nd (1987), 52nd (1995-96) and 60th (2004). The availability of unit-record data of the latest rounds provides an opportunity to generate new evidence, and refine and extend the existing evidence on inequalities in healthcare utilisation among Indian states.

The present paper is an attempt in this direction, exclusively focusing on (a) utilisation of inpatient care; and (b) rural India. Its objectives are (1) to assess the level of inequality in inpatient care utilisation across Indian states; (2) to assess the changes in inequality in inpatient care utilisation over time; and (3) to explore the characteristics of the states that have experienced different levels and changes in inequality. The paper is organised in the following manner. Section 2 discusses the methods and data, and Section 3 explores the level of, and inequality in, inpatient care utilisation and their changes over time. Section 4 discusses the roles of related factors in explaining the changes in level of, and inequality in, inpatient care utilisation. Section 5 concludes the paper.

## 2 Methodology and Data Sources

### Measuring Inequality in Utilisation of Healthcare

The simplest way of measuring inequality in the utilisation of healthcare facilities is to compare the average level of utilisation across population subgroups based on socio-economic or demographic characteristics (castes, income/expenditure classes,

sex, age groups, and the like). However, such an aggregate measure reflects only a partial picture of how healthcare is distributed across people. It is argued that a health inequality measure should ideally satisfy certain criteria (Wagstaff et al 1991). First, it should incorporate and reflect the socio-economic or demographic characteristics of the health variable. For example, when two individuals, say, a rich and a poor person fall sick with the same illness with similar severity, a situation where only the rich person is able to seek healthcare (leaving the poor person without healthcare) may not indicate the same situation as one where the poor person seeks healthcare and the rich person does not. While the rich person's decision to not seek healthcare could be his or her conscious choice, it is more likely that the poor person's choice is restricted by his or her financial and other constraints. An ideal inequality measure should be able to distinguish between these two situations. Second, the inequality measure should capture the healthcare utilisation pattern of the entire population. Third, the inequality measure should be sensitive to changes in the distribution of healthcare across population subgroups. In spite of its drawbacks, the concentration index (CI) satisfies these criteria and has been widely used in empirically capturing inequality in health variables (O'Donnell et al 2007).

The CI is derived from a concentration curve. The concentration curve shows the cumulative share of healthcare (in proportion/percentage) utilised by the cumulative proportion (or percentage) of individuals in the population, ranked from the poorest to the richest (Kakwani et al 1997; Wagstaff et al 1991). The CI is defined as twice the area between the concentration curve and the line of equality (45° line from origin). When there is no income/economic status-related inequality in the utilisation of healthcare, the concentration curve coincides with the equality line and the CI becomes zero. The value of the CI lies between -1 and 1. When the concentration curve is below the equality line, the health variable favours the rich and the CI takes a positive value. When the concentration curve is above the equality line, the health variable favours the poor and the CI takes a negative value.

If the population is divided into N subgroups in ascending order of income or expenditure, the CI can be defined by the following formula,

$$CI = \frac{2}{h}\sum_{n=1}^{N} p_n h_n R_n - 1, \text{ where } R_n = \sum_{i=1}^{n-1} p_i + \frac{P_n}{2} \text{ and } h = \sum_{n=1}^{N} p_n h_n$$

where $h$ is the average rate of healthcare utilisation by the whole population; $p_n$ is the proportionate share of $n^{th}$ in the total population; $h_n$ is the rate of healthcare utilisation of the $n^{th}$ group; $R_n$ is the relative rank of the $n^{th}$ group; and $n$ is 1, 2, …N.

Although reducing inequality in healthcare utilisation across the population is an important goal of the health sector from an equity point of view, the overall level of healthcare utilisation should not be undermined. One may argue that some amount of inequality in healthcare utilisation is acceptable if the overall level of utilisation is adequately high. Wagstaff (2002) suggests a measure of achievement that takes into account both the average rate of healthcare utilisation and inequality in its distribution. The measure, which is nothing but an inequality-adjusted average rate of utilisation ($h^*$), can be expressed by $h^* = h.(1 - CI)$. If there is no inequality in utilisation, both $h$ and $h^*$ will converge. If the distribution of healthcare is pro-rich, the adjusted rate of healthcare utilisation will be lower than the unadjusted rate, and vice versa.

## Source of Data

We use unit-record data from the last two NSS rounds on healthcare, the 52nd (July 1995-June 1996) and 60th (January-June 2004). These surveys covered the entire country with few exceptions, adopted multistage stratified samplings and collected detailed information on morbidity, utilisation of healthcare and healthcare expenditure. For the 52nd round, the sample consisted of 14,029 hospitalisation episodes from a total of 71,284 rural households. For the 60th round, the sample comprised 20,534 hospitalisation episodes from a total of 47,302 rural households. Persons were considered as having utilised inpatient care (or hospitalised care) if they had availed themselves of medical services as indoor patients in any medical institution. However, utilisation of inpatient care by females for childbirth was not considered. The recall period for hospitalisation in both the surveys was 365 days preceding the day of survey.

We concentrate our analysis on the utilisation of inpatient care in rural India because of the following reasons. One, providers of inpatient care are less heterogeneous in comparison to providers of outpatient care, which ranges from unqualified traditional healers to highly qualified doctors. Therefore, aggregation of inpatient care suffers from a lesser degree of methodological objection than aggregation of outpatient care. Two, about three-fourths of the health infrastructure, medical manpower and other health resources are concentrated in urban areas where only a little more than a quarter of the population lives (Patil et al 2002). So, the inequality in inpatient care utilisation is expected to be more pronounced in many rural parts of the country due to poor access to facilities that provide it.

Computation of the CI in our context requires information on two variables – on utilisation of inpatient care; and on the economic status or living standards of individuals or households. As far as the economic status or living standards of households is concerned, different indicators have been used in different studies. Even though it is not always possible to establish a clear advantage of one measure over the others, a household's per capita (or per capita equivalent) consumption expenditure is often considered a good proxy for living standards in informal rural economies of developing countries (Deaton and Grosh 2000). We use a household's monthly per capita consumption expenditure as a proxy for its living standards or economic status. Therefore, the CI in our analysis captures the economic status-based inequality in inpatient care utilisation. The decile and quintile-wise ranges of per capita consumption expenditure were calculated for the whole of rural India and applied to all the major states for computing the CI and for comparing the average rate of inpatient care utilisation among the poor and rich population subgroups. To have a close look at the pattern of inpatient care utilisation, we consider the behaviour of the bottom 30% and the top 10% of the

rural population. These groups can roughly be considered as poor and rich respectively.

## 3 Pattern of Inpatient Care Utilisation: Level and Distribution

### Increasing Rate of Inpatient Care Utilisation

The rate of inpatient care utilisation is defined as the number of hospitalisation cases per 1,000 population. A comparison between the NSS 52nd and 60th rounds (Figure 1) clearly shows that the rate of inpatient care utilisation increased substantially (by 73%) between 1995-96 and 2004 (from 15 to 26). This increase was higher among the poor (from 6 to 16, a 167% increase) than the rich (from 44 to 52, an 18% increase) (Table 1). At the state level, in 1995-96, rural Kerala and rural Bihar reported the highest (82) and lowest (6) rates of inpatient care utilisation respectively. Though all the major Indian states witnessed an increase in the rate of inpatient care utilisation, Kerala and Bihar retained their highest and lowest positions in 2004. The states that experienced the highest increase in the rate of inpatient care utilisation were Gujarat (120% increase), Punjab (127%), Rajasthan (133%) and West Bengal (127%).

**Figure 1: Rate of Utilisation of Inpatient Care per 1,000 Population, Rural Areas**
(1995-2004)

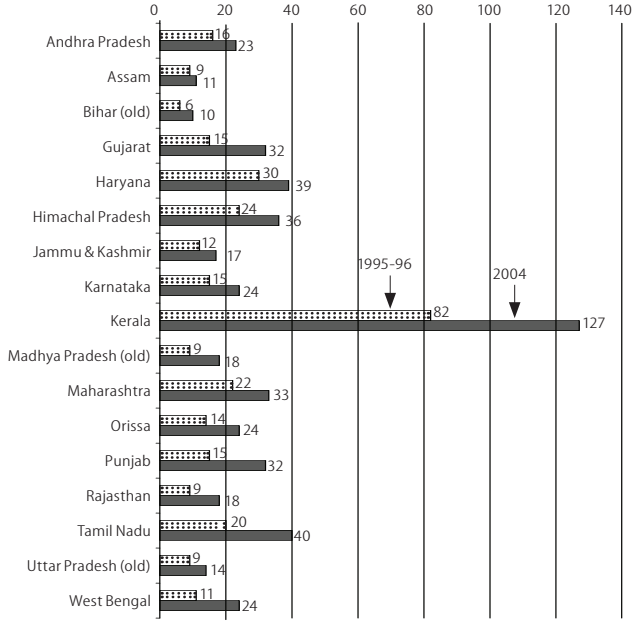



**Table 1: Inpatient Care Utilisation per 1,000 Population in Rural India**

| States | 1995-96 | | 2004 | |
|---|---|---|---|---|
| | Poor (Bottom 30%) | Rich (Top10%) | Poor (Bottom 30%) | Rich (Top 10%) |
| Andhra Pradesh (AP) | 6 | 77 | 15 | 42 |
| Assam (AS) | 7 | 32 | 12 | 17 |
| Bihar (BI) (erstwhile) | 3 | 25 | 8 | 36 |
| Gujarat (GU) | 4 | 27 | 26 | 45 |
| Haryana (HA) | 4 | 55 | 34 | 43 |
| Himachal Pradesh (HP) | 9 | 52 | 36 | 47 |
| Jammu and Kashmir (J&K) | 7 | 19 | 5 | 25 |
| Karnataka (KA) | 4 | 62 | 16 | 38 |
| Kerala (KE) | 68 | 101 | 118 | 137 |
| MP (MP) (erstwhile) | 3 | 33 | 13 | 38 |
| Maharashtra (MA) | 10 | 49 | 28 | 51 |
| Orissa (OR) | 7 | 80 | 20 | 53 |
| Punjab (PU) | 1 | 21 | 13 | 48 |
| Rajasthan (RA) | 4 | 21 | 15 | 47 |
| Tamil Nadu (TN) | 9 | 60 | 28 | 60 |
| UP (UP) (erstwhile) | 5 | 28 | 8 | 34 |
| West Bengal (WB) | 7 | 28 | 21 | 37 |
| Rural India | 6 | 44 | 16 | 52 |

Source: Estimated from NSS 52nd and 60th rounds unit-record data.

### Disparities in Inpatient Care Utilisation

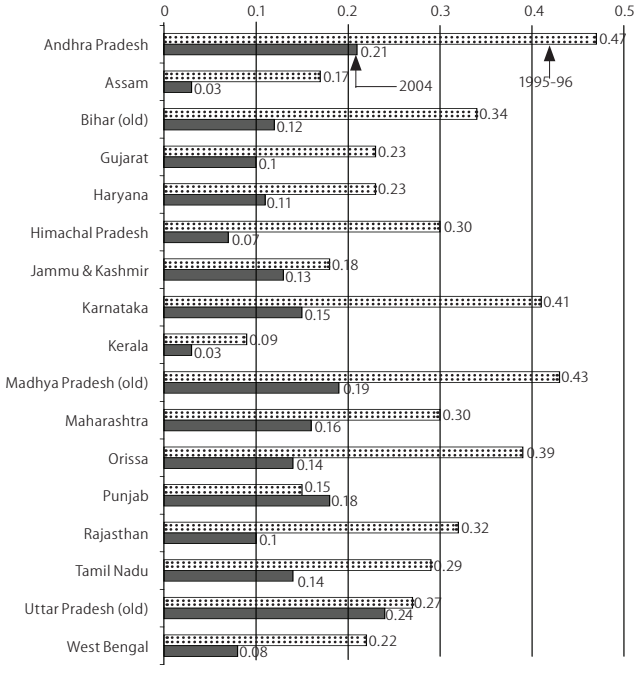
Calculating the poor-rich gap in inpatient care enables us to assess if this increase in the rate of inpatient care utilisation was equally contributed to by the rich and poor segments of the population. In 1995-96, the poor-rich gap (measured as a ratio between the rate of inpatient care utilisation among the rich and among that of the poor) was very wide in all major Indian states with the exception of rural Kerala. By 2004, the poor-rich gap in the rate of inpatient care utilisation had narrowed in all major states as well as in rural India as a whole. In rural India, the poor-rich gap (measured as a ratio) declined from 7.3 (= 44:6) in 1995-96 to 3.3 (= 52:16) in 2004. In six of 17 major Indian states, the rate of inpatient care utilisation was more than 10 times higher among the rich than the poor in 1995-96. These states were Andhra Pradesh (13 times), Haryana (14 times), Karnataka (16 times), Madhya Pradesh (11 times), Orissa (11 times), and Punjab (21 times). In spite of a very high rate of inpatient care utilisation in rural areas, the poor-rich divide was lowest in Kerala (1.5 times) in 1995-96 and remained so (1.2 time) in 2004. While all the major states have experienced a decline in the poor-rich gap in inpatient care utilisation, erstwhile Bihar, erstwhile Madhya Pradesh, Punjab and erstwhile Uttar Pradesh showed a very high poor-rich gap even in 2004. Jammu and Kashmir also joined this league of states in 2004. Since the overall rate of inpatient care utilisation has increased in all these states, a non-declining poor-rich gap clearly indicates that the increase has not been fairly shared between the poor and rich segments.

While the poor in all the major states (with the exception of Jammu and Kashmir) showed a substantial increase in the rate of inpatient care utilisation between 1995-96 and 2004, this was not the case among the rich. Of 17 major Indian states, the rich population in six showed a decline in the rate of inpatient care utilisation (Table 1). However, the overall rate of inpatient care utilisation increased in these states because the increase among the non-rich (bottom 90% of the population) more than compensated for the decline among the rich. Though the large increase in the rate of inpatient care utilisation among the poor and the decrease, or marginal increase, in the rate among the rich suggests that the poor-rich gap has been closing over the years, it could also suggest an increased need for inpatient care among the poor due to their deteriorating health status.

### Inequality in Inpatient Care Utilisation

The economic status-related inequality in utilisation of inpatient care captured by CI values is presented in Figure 2 (p 87). The figure shows that the CI has decreased from 0.36 in 1995-96 to 0.22 in 2004 in rural India, indicating a decline in inequality in the

**Figure 2: Concentration Index – Utilisation of Inpatient Care, Rural Areas** (1995-2004)




utilisation of inpatient care. In 1995-96, the states with a very high CI value were Andhra Pradesh (0.47), erstwhile Madhya Pradesh (0.43) and Karnataka (0.41). This showed that not all four south Indian states had a fair distribution of healthcare and Andhra Pradesh and Karnataka lagged behind Kerala and Tamil Nadu. Rural Kerala showed the lowest CI value (0.09) in 1995-96 and in 2004 (0.03). Between 1995-96 and 2004, the value of the CI declined for all the states (except rural Punjab), indicating a declining inequality. The states that showed very high CI values in 2004 were erstwhile Uttar Pradesh (0.24), Andhra Pradesh (0.21) and erstwhile Madhya Pradesh (0.19). Though inequality declined significantly in Karnataka between 1995-96 and 2004, Andhra Pradesh remained a state with high inequality.

When the health sector of a state is not able to provide adequate inpatient care services to meet the needs of a larger population, the rich and affluent are likely to corner a disproportionately high share of healthcare because of better access and higher purchasing power. In other words, inequality in the distribution of healthcare is expected to be higher in those societies which provide little healthcare. The statistical association between the average level and the inequality in healthcare utilisation suggests that there is some truth in the above hypothesis. The values of correlation coefficient between the average rate of inpatient care utilisation and the CI (computed from the cross-state data, excluding the outlier, Kerala) are -0.0712 and -0.1679 for 1995-96 and 2004, respectively. If we include Kerala, the values of correlation coefficient become -0.4605 and -0.4342 in 1995-96 and 2004, respectively.

The high rate of inpatient care utilisation observed in states with good health indicators (and vice versa) implies that the former may be considered a sign of the robustness of their health sector. In other words, if a state shows a higher rate of inpatient care utilisation, it may indicate a higher volume of healthcare provided by the health sector, rather than reflect higher morbidity requiring inpatient care. For example, Kerala, which shows the best health indicators in the country (such as highest life expectancy and lowest infant mortality and maternal mortality rates), has the highest rate of inpatient care utilisation. Tamil Nadu, which has improved its health indicators in recent years, also shows a high rate of inpatient care utilisation. Conversely, Bihar, which reports the lowest rate of inpatient care utilisation, has poor health indicators.

## Inequality-Adjusted Rates of Inpatient Care Utilisation

Since focusing solely on inequality ignores the average level of inpatient care utilisation, we have taken into account both the average level and inequality to assess the changes that have been taken place in different states between the two survey years. Table 2 presents the inequality-adjusted rate of inpatient care utilisation. It also indicates the ranks of the states based on unadjusted as well as adjusted rates of inpatient care utilisation. Although the ranking of the states based on adjusted and unadjusted rates of inpatient care utilisation are not very different, there is still some dissimilarity. The Spearman rank correlation coefficients between unadjusted and adjusted rates of inpatient care utilisation are 0.9225 and 0.9898 in 1995-96 and 2004, respectively. The increase in the correlation value suggests that the original ranking of the states is less affected by the inequality measure in 2004 compared to 1995-96.

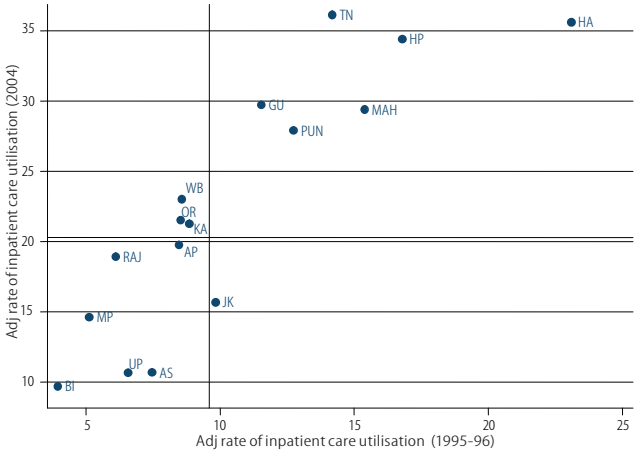
**Table 2: Inequality-Adjusted Rate of Inpatient Care Utilisation in Rural India**

| States (rural) | 1995-96 | 2004 |
|---|---|---|
| AP | 8 (10) | 20 (10) |
| AS | 7 (11) | 11 (16) |
| BI | 4 (14) | 10 |
| GU | 12 (7) | 30 (4) |
| HA | 23 (2) | 36 (2) |
| HP | 17 (3) | 34 (3) |
| JK | 10 (8) | 16 (13) |
| KA | 9 (9) | 21 (9) |
| KE | 75 (1) | 126 (1) |
| MP | 5 (13) | 15 |
| MA | 15 (4) | 29 (5) |
| OR | 9 (9) | 22 (8) |
| PU | 13 (6) | 28 (6) |
| RA | 6 (12) | 19 (11) |
| TN | 14 (5) | 36 (2) |
| UP | 7 (11) | 11 |
| WB | 9 (9) | 23 (7) |
| Rural India | 10 | 20 |

Figures in parentheses are ranks of the states according to their adjusted rate of hospitalisation.
Source: Estimated from NSS 52nd and 60th rounds unit-record data.

Although all the states experienced an increase in unadjusted as well as adjusted rates of inpatient care utilisation, they fared differently when it came to the magnitude of the increase. Some states improved their positions with respect to the national average, while others lagged behind, or even deteriorated. This apparent pattern is explored graphically in Figure 3 (p 88), excluding Kerala to avoid a compressed clustering of states. The figure shows that barring Jammu and Kashmir, all other states either retained or improved their relative positions. The relative positions of erstwhile Bihar, erstwhile Uttar Pradesh, erstwhile Madhya Pradesh, Rajasthan and Assam remained the same. In terms of the inequality-adjusted rate of inpatient care utilisation, they were below the national average in 1995-96 and remained so even in 2004. The states which retained their better-off positions were Kerala (not shown in the figure), Haryana, Himachal Pradesh, Tamil Nadu, Gujarat and Punjab. It is worth noting that these are states either having a strong government inpatient care sector (along with a good network of private hospitals) or an industrially or agriculturally developed economy.

**Figure 3: Change in Inequality-Adjusted Rate of Inpatient Care Utilisation across Major Indian States between 1995-96 and 2004**

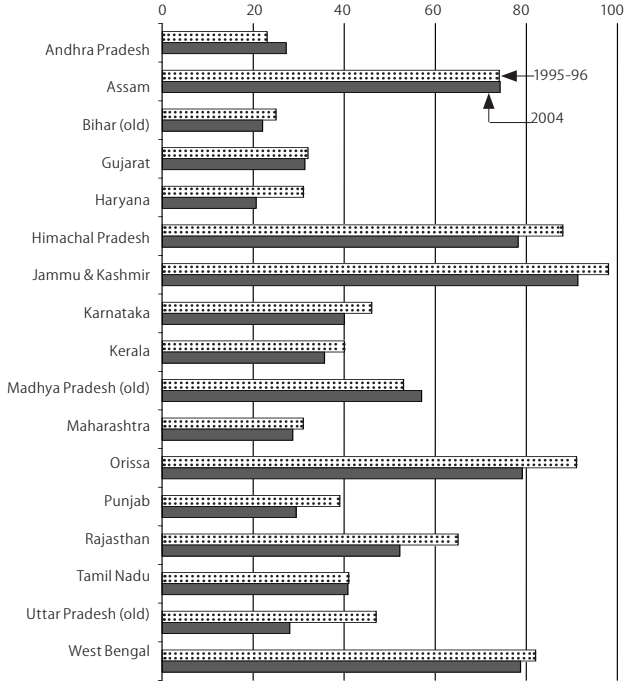



Even though West Bengal, Orissa and Karnataka improved their relative positions, they were well below more developed states, including Kerala, Tamil Nadu and Himachal Pradesh.

## Sources of Inpatient Care

Between 1995-96 and 2004, the rural population's dependence on government hospitals declined only marginally (45% to 42%). In 1995-96, the states with a very high dependence on government hospitals were Himachal Pradesh (88%), Jammu and Kashmir (98%), Orissa (91%) and West Bengal (82%), and the states with a very low dependence on government hospitals were Andhra Pradesh (23%) and erstwhile Bihar (25%) (Figure 4). Available data for a comparable period (1998) shows that almost 60% of the total hospital beds in Andhra Pradesh were in private hospitals. However, there was no such private-sector presence in Bihar (Government of India 2006). On the other hand, Kerala and Tamil Nadu, where the private sector is well developed compared to many other states, did not show very low dependence on government hospitals (40% in Kerala and 41% in Tamil Nadu). Except Andhra Pradesh, Assam, Madhya Pradesh and Tamil Nadu, in all other states, the rural population's dependence on government hospitals declined between 1995-96 and 2004. It marginally increased in Andhra Pradesh (23% to 27%) and erstwhile Madhya Pradesh (53% to 57%) and remained the same in Assam (74%) and Tamil Nadu (41%). The decline in dependence on government hospitals was more in erstwhile Uttar Pradesh (47% to 28%), Haryana (31% to 21%) and Punjab (39% to 29%).

**Figure 4: Percentage of Inpatient Care from Government Sources in Rural India** (1995-2004)




A comparison of the declining dependence on the government by the poor and the rich segments of the population suggest that it is not confined to the rich alone (Table 3). With the exceptions of Assam, Jammu and Kashmir, Kerala and Punjab, the rural poor in all other major states have reduced their dependence on government hospitals. Though the trend of the rich relying less on government hospitals is not unexpected, it is worth noting that in two south Indian states, Andhra Pradesh and Tamil Nadu, the dependence of the rural rich on government hospitals has increased over the years.

**Table 3: Percentage Share of Government Hospitals in Total Inpatient Care**

| States (Rural) | 1995-96 | | 2004 | |
|---|---|---|---|---|
| | Poor (Bottom 30%) | Rich (Top 10%) | Poor (Bottom 30%) | Rich (Top 10%) |
| AP | 42 | 8 | 37 | 12 |
| AS | 42 | 75 | 91 | 67 |
| BI | 28 | 20 | 20 | 14 |
| GU | 49 | 24 | 43 | 18 |
| HA | 34 | 26 | 29 | 22 |
| HP | 100 | 88 | 85 | 70 |
| JK | 100 | 99 | 100 | 88 |
| KA | 70 | 24 | 43 | 16 |
| KE | 46 | 32 | 50 | 29 |
| MP | 70 | 42 | 62 | 41 |
| MA | 60 | 17 | 48 | 11 |
| OR | 90 | 91 | 81 | 68 |
| PU | 42 | 39 | 72 | 25 |
| RA | 78 | 76 | 48 | 46 |
| TN | 70 | 14 | 47 | 24 |
| UP | 59 | 44 | 33 | 25 |
| WB | 94 | 59 | 92 | 51 |
| Rural India | 62 | 33 | 54 | 28 |

Source: Estimated from NSS 52nd and 60th rounds unit-record data.

## 4 Discussion

Does the increase in the rate of inpatient care utilisation observed in Indian states indicate the people's enhanced ability to pay for healthcare? Does declining inequalities in inpatient care utilisation indicate better access for the poor? Is declining dependence on government hospitals, especially among the poor, a good sign? What is the combined welfare effect of the increase in inpatient care utilisation, the decline in inequality, the decline in utilisation of government facilities, and the steep increase in costs of inpatient care? In the following discussion we take up some of these crucial questions.

The decrease in inequality in inpatient care utilisation may seem a desirable change as far as equity in the distribution of the health sector's output is concerned. However, by ignoring other associated changes that have taken place, we run the risk of drawing incorrect inferences. The decrease in inequality may not indicate a more equitable situation, especially for the poor, if there is sharp rise in the overall increase in inpatient care utilisation, a decline in dependence on government hospitals and a high rise in the costs of inpatient care. Before examining the other associated changes, let us explore if the overall rate of inpatient care utilisation (unadjusted for inequality) has any connection with

the population's overall dependence on government hospitals. If suppliers' induced demand is stronger for inpatient care, one would expect a high rate of inpatient care utilisation (especially among the rich) in states with a large private inpatient care sector. In other words, the rate of inpatient care utilisation is expected to be higher in states that predominantly depend on private hospitals for it and vice versa. A close comparison between Figures 1 and 4 suggests that there is no apparent connection between the overall rate of inpatient care utilisation and the share of the government sector in total inpatient cases.

Although we are not able to provide any direct evidence on the linkage between suppliers' induced demand for inpatient care and the high rate of inpatient care utilisation, it is observed that there is a negative relationship between the rate of inpatient care utilisation and the rate of poverty. Excluding rural Kerala, the correlation coefficient between the rate of inpatient care utilisation (1995-96) and the percentage of rural population below the poverty level (1993-94) is -0.5354. The correlation coefficient between the rural rate of inpatient care utilisation (2004) and the percentage of rural poverty (2004-05) is -0.5157. There is also evidence of a positive connection between dependence on government facilities and the incidence of rural poverty (Chakraborty and Mukherjee 2003).

Although the dependence of the rural population on government hospitals is negatively related to the rate of poverty, the strength of the relationship has weakened over the years. In 2004-05, a negative relation is evident only when we exclude states like Jammu and Kashmir, Himachal Pradesh and Bihar. The case of Bihar is distinct from that of other states. In spite of a vast poor population, only a small percentage of the rural population utilise government hospitals. Available data for a comparable period (Government of India 2006) shows that the population-bed ratio is 3,029 in Bihar, which is lower than only a few states – Jammu and Kashmir (4,790), erstwhile Madhya Pradesh (3,761) and Rajasthan (3,029). During the same period, 75% and 93% of the hospital beds in Jammu and Kashmir and Himachal Pradesh respectively were in government facilities. Orissa is another state with a large dependence on government hospitals (though it declined between 1995-96 and 2004). The rural population's higher dependence on government hospitals in Orissa could be the combined result of two factors. First, in 1993-94, the percentage of the rural population below the poverty line was the second highest in Orissa (about 50%, after 54% in erstwhile Bihar). Second, the private inpatient care sector seems to be poorly developed in Orissa as official data suggests that only 2% of its total beds are in private hospitals.

We have already observed that both poor and rich segments of the population reduced their dependence on government hospitals for inpatient care between 1995-96 and 2004. The states which saw a steep decline in the utilisation of government hospitals by the rural population were erstwhile Uttar Pradesh, Haryana and Punjab (Figure 4). The states where the rural poor significantly reduced their dependence on government hospitals were erstwhile Bihar, Karnataka, erstwhile Uttar Pradesh and Rajasthan. Though the rich population's gradual withdrawal from government hospitals is not unexpected, such a shift among the poor population is a matter of concern from an equity point of view, especially if there is no evidence to suggest that their living standards have improved so remarkably as to prompt a profound shift in behaviour.

A comparison of poverty figures between 1993-94 and 2004-05 shows that the incidence of rural poverty declined in all states, though in varying degrees. However, it would be simplistic to attribute the rise in the utilisation of private hospitals to the fall in the incidence of poverty. Rising above the poverty line does not

**Table 4: Change in Prices of Basic Necessities, Median Costs of Hospitalisation and Distribution of Out-of-Pocket Cost of Hospitalisation by Sources of Finance**

| States (Rural) | Poverty Line (%) Increase between | Increase in Median Cost of Hospitalisation (%) between 1995-96 and 2004[2] | | Percentage Distribution of Total Out-of-Pocket Expenses on Hospitalisation by Sources of Finance for Bottom 30% of the Population[3] | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 1995-96 | | | 2004 | | |
| | 1993-94 and 2004-05[1] | Government Hospitals | Private Hospitals | Current Income/Savings | Borrowings | Others[7] | Current Income/Savings | Borrowings | Others |
| AP | 80 | 39 | 77 | 31 | 59.6 | 9.4 | 31.7 | 59.6 | 8.7 |
| AS | 67 | 37 | 1949 | 53.1 | 40.5 | 6.4 | 46 | 30 | 24 |
| BI* | 67[4] | | | | | | 40.7 | 41.5 | 17.8 |
| JH | 73[4] | | | | | | 43.2 | 37.5 | 19.3 |
| BI | | 22 | 96 | 40.3 | 52.8 | 6.9 | 41.1 | 41 | 17.9 |
| GU | 75 | 168 | 78 | 65.4 | 23.8 | 10.8 | 33.5 | 53.3 | 13.2 |
| HA | 77 | 236 | 155 | 12.1 | 87.9 | 0 | 45.8 | 44 | 10.2 |
| HP | 69 | 205 | 519 | 47.1 | 50.3 | 2.6 | 32.2 | 50.4 | 17.4 |
| JK | – | 145 | 361 | 95.7 | 4.3 | 0 | 72.9 | 21.1 | 6 |
| KA | 74 | 5 | 60 | 30.5 | 56.3 | 13.2 | 23.6 | 61.8 | 14.6 |
| KE | 76 | 88 | 136 | 29.5 | 49.3 | 21.2 | 21.6 | 38.5 | 39.9 |
| MP* | 70[5] | | | | | | 41.9 | 48.7 | 9.4 |
| CH | 67[5] | | | | | | 23 | 33.8 | 43.2 |
| MP | | 19 | 100 | 34.7 | 44.9 | 20.4 | 34.7 | 43 | 22.3 |
| MA | 86 | 88 | 164 | 41.3 | 43.5 | 15.2 | 20.4 | 54.8 | 24.8 |
| OR | 68 | 242 | 251 | 24.3 | 59.9 | 15.8 | 35 | 46.8 | 18.2 |
| PU | 76 | 225 | 143 | 64.8 | 35.2 | 0 | 34.4 | 64.8 | 0.8 |
| RA | 74 | 137 | 256 | 59.5 | 14.2 | 26.3 | 27 | 63.1 | 9.9 |
| TN | 79 | 112 | 60 | 30.3 | 65.5 | 4.2 | 16.1 | 68.8 | 15.1 |
| UP* | 72[6] | | | | | | 38.9 | 39.2 | 21.9 |
| UT | 124[6] | | | | | | 80.8 | 14.5 | 4.7 |
| UP | | 171 | 143 | 46.9 | 40.9 | 12.2 | 39.8 | 38.7 | 21.5 |
| WB | 73 | 151 | 110 | 34 | 44.7 | 21.3 | 34.3 | 41.6 | 24.1 |
| Rural India | 73 | 91 | 120 | 39.7 | 47.9 | 12.4 | 32.7 | 47.7 | 19.6 |

1 Percentage increase in the poverty line per capita expenditure values (Rs) between two consumption rounds (1993-94 and 2004-05).
2 Percentage increase in the median cost of a hospitalisation episode at government and private hospitals between 1995-96 and 2004.
3 Percentage distribution of total out-of-pocket hospitalisation expenses of poor households (bottom 30% of the population) by sources of finance.
4 Calculated by comparing with poverty line of erstwhile Bihar.
5 Calculated by comparing with poverty line of erstwhile MP.
6 Calculated by comparing with poverty line of erstwhile UP.
7 Other sources consist of contributions by friends/relatives and selling of assets.
Source: Planning Commission, NSS unit-record data (52nd and 60th rounds).

necessarily make a poor household shift from government to private hospitals. A close look at other indicators gives enough hints that the declining inequality in inpatient care utilisation along with an increasing dependence on private hospitals has not made the situation more equitable for the rural poor. In 1993-94, the average poverty line for rural India was Rs 205.84 per person (lowest for rural Andhra Pradesh at Rs 163.02 per person and highest for rural Kerala at Rs 243.84 per person). In 2004-05, the average poverty line for rural India was revised to Rs 356.30 per person (rural Andhra Pradesh remained the lowest at Rs 292.95 per person and rural Uttarakhand became the highest at Rs 478.02 per person).

Since the poverty line reflects the minimum food consumption expenditure necessary for a person, the rates of its increase in absolute values give us a fair idea of how the prices of basic food items have increased between two time points. A comparison of rural poverty lines between 1993-94 and 2004-05 shows that the prices of basic food items increased in a range of 67% to 124% in different states (Table 4, p 89). During 1995-2004 (which is roughly comparable to 1993-2005), the average costs of inpatient care in government and private hospitals increased at rates more than the prices of basic food items in most of the states (Table 4). In rural India, while the prices of basic food items increased by 73%, the median costs of inpatient care at government and private hospitals increased by 91% and 120% respectively during the same period. The states where the median costs of inpatient care at government hospitals increased much more than the increase in the prices of basic food items were Gujarat (168% vs 75%), Haryana (236% vs 77%), Orissa (242% vs 68%), Punjab (225% vs 76%), Rajasthan (137% vs 74%), Tamil Nadu (112% vs 79%) and West Bengal (151% vs 73%). Even though the cost of inpatient care at private hospitals is likely to grow at a faster rate than at government hospitals, there are a few states that are exceptions. In six states, the median cost of inpatient care at government hospitals grew faster than that at private hospitals. These states were Gujarat, Haryana, Punjab, Tamil Nadu, erstwhile Uttar Pradesh and West Bengal. The big slide in the share of government hospitals in total inpatient care in states such as Haryana, Punjab, and erstwhile Uttar Pradesh might be due to the increase in the relative price of inpatient care at government hospitals (that is, the ratio between the average costs of inpatient care in government and private hospitals).

The increasing rate of inpatient care coupled with its growing cost and a higher dependence on private hospitals has resulted in a higher financial burden for households, especially poor ones. There is growing evidence of households being pushed into poverty when faced with huge healthcare expenses, particularly when combined with a loss of income due to ill health (McIntyre et al 2006; Selvaraj and Karan 2009). The distribution of total out-of-pocket expenditure incurred by the poor for hospitalised treatment and their sources of finance are presented in Table 4. The table shows that the ability of the rural

poor to finance inpatient care expenses from their current incomes or savings significantly fell between 1995-96 and 2004. The rural poor now depends more on contributions from friends or relatives and borrowings than they used to earlier. This is true of rural India as a whole as well as of many major states. There are as many as seven states where the poor population's ability to pay for inpatient care from current income or savings has decreased drastically. These are Rajasthan, Gujarat, Punjab, Jammu and Kashmir, Maharashtra, Himachal Pradesh and Tamil Nadu. Apart from Jammu and Kashmir, there has been a large increase in the rate of inpatient care utilisation among the poor in the other six (Table 1). These findings give us ample reason to say that the decline in inequality in utilisation of inpatient care has resulted in a welfare loss for poor households when measured by other indicators. This finding is in line with an observation made in a previous study, which states that policy changes in the 1990s that directly and indirectly promoted privatisation have had welfare-diminishing effects, especially among the poor (Sen et al 2002).

### Study Strengths and Limits

A limitation of the CI is that it is just a measure of inequality and does not capture the variance of the living standards measure. A change in the degree of inequality in the living standards indicator (per capita consumption expenditure) will not affect the CI if it leaves the ranks of the individuals unaltered. It is also argued that the health variable should be standardised by demographic variables before assessing its inequality across classes (O'Donnell et al 2007). We have not standardised the health variable as it masks a portion of the rich-poor inequality by justifying part of the higher healthcare consumption by the rich as fair, due to their higher share of elderly people.

## 5 Conclusions

A comparison of the NSS 52nd (1995-96) and 60th (2004) rounds data shows that the rate of inpatient care utilisation has substantially increased among the rich as well as the poor in all major states of rural India. Contrary to the widespread belief of increasing inequality in the health sector, it is observed that economic status-related inequality in inpatient care utilisation has declined over the years. During the same period, the rural population's dependence on government hospitals has substantially declined in many states and such a shift can be seen not only among the rich but also among the poor segments of the population. However, the lowering of inequality has not made the situation more equitable for the poor because of a high increase in the rate of inpatient care utilisation, a decline in dependence on government hospitals and a steep hike in the cost of inpatient care. In a majority of states, the average cost of inpatient care, even at government hospitals, has gone up at a much higher rate than the prices of essential food items. The hardship faced by the rural poor in meeting healthcare expenses is evident from data on their sources of finance for it. Compared to earlier days, the rural poor now depends less on their current incomes and savings and more on contributions and borrowings for financing their inpatient care expenses. One may conclude that in spite of a decline in inequality, the sharp increase in inpatient care utilisation, the decline in dependence on government facilities, the dizzying rise in inpatient care expenses, and the unfavourable ways of financing them have created long-term welfare-reducing effects among the rural poor.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