

## **IMPACT OF HEALTH SECTOR REFORMS ON UTILIZATION OF HEALTH CARE SERVICES IN RURAL ASSAM (INDIA)**

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### **Abstract**

#### **Objective:**

To analysis the impact of health reforms on the pattern of utilization of health care services and to identify the factors affecting choice of health care facilities based on a cross section study in rural Assam.

#### **Methods:**

In this paper an attempt has been made to present some preliminary results of the significant changes that occurred during 1887-88, 1995-96 and 2004. The study has used the published reports of 42<sup>nd</sup> (1887-88), 52<sup>nd</sup> (1995-96) and 60<sup>th</sup> (2004) round of National Sample Survey Organization (NSSO). To identify the factors affecting accessibility to public health care facilities the study relied upon a household survey conducted in Nagaon and Nalbari district of Assam during 2014-15. A binary logistic regression model has been used to identify the factors affecting accessibility to public health care facilities.

#### **Results:**

The analysis imply that the dependence and utilization of public health care facilities for outpatient care has declined drastically in Assam since the period from 1987-88 to 2004. In case

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of inpatient care the dependence is very high on public health facilities but the rate of utilization has declined since the inception of health reform measures. Results of the binary logistic regression model indicate that the non-poor, highly educated people have greater likelihood of using private health facilities than their counterparts.

### **Conclusions:**

The state requires greater public investment for improving the quality of care in the government health facilities. Moreover, there is a need to regulate the private health care market as majority of the rural population depends on public hospitals for treatment.

**Keywords:** Choice of health care, rural health, utilization of health care services, health sector reforms, inpatient care, outpatient

## **1. Background**

India has made a number of policy changes in the health sector since the inception of economic reform measures in 1991. There has been a decline in the role of state since the period from 1980s' but a significant change was noticed only after 1991. The health sector reforms have resulted in significant changes in the overall health care delivery system together with changes in the health care financing scenario of India. In order to resolve the problem of inefficiencies in public healthcare system, reforms were carried out either by pushing for privatization or operating in public private partnership mode. Public private partnership (PPP) has been called upon to improve equity, efficiency, accountability, quality and accessibility of the entire health system (Bhatt, 2000; Sen et al., 2004). Opening up of the health sector to insurance is another form of privatization that has been openly embraced in the post reforms period (see Ahuja, 2004; Acharya and Ranson, 2005; Mudgal et al., 2005; Hasio, 2013; Selvaraj and Karan, 2012; Fan et al., 2012; Desai, 2009, Rao, 2004; Ellis et al., 2000). The need for a more broad based medical insurance coverage has been initiated with the aim of absorbing the financial shocks caused by lump-sum expenditure on medical treatment (Rao, 2004; Ahuja 2004). However reforms seem to have had a severe impact on India's health scenario. Reforms introduced user fees, provision of clinical and ancillary services to the private sector and public private partnership (Duggal, 2005, cited in Baru et al., 2010). The policy of levying user fees had a negative impact on the poor and

marginalized communities (Ghosh, 2008; Baru et. al., 2010). The growth oriented structural adjustment programme supported a perfectly competitive market set-up. But this model did not fit the medical care sector in India because the ordinary people in need of medical care need it immediately and have no time to gather information about these services through repeated transactions (Guhan, 1995).

### *The case for Assam*

A study of the macroeconomic conditions and health policy reforms on public expenditure on health among the Indian states reveals that during the period between 1987 to 1992 growth rates in public expenditure was negative for all the states including Assam. In the 2<sup>nd</sup> phase (1993-1998), the introduction of the structural adjustment programme has adverse impact on the health sector of most of the states. During this period the growth rate in per capita health expenditure was negative in some of the states like Assam and Uttar Pradesh which was mainly due to financial stress in these states, resulting in cut in expenditure on health (Hooda, 2013). There was a reduction in the central transfer of funds to almost all states so as to contain the fiscal deficit. This resulted in reduction in the resource pool of the state governments because of which the state governments were forced to cut down their budgetary allocation on different sectors specifically the health sector (Selvaraju and Annigeri, 2001, Tulasidhar, 1993, Ghuman et al. 2009, Choudhury and Nath, 2012). Sarma (2004) in a study related to health expenditure in Assam has noted that in times of fiscal hardship public expenditure has been squeezed more in the health sector than in any other sector. In the above context the paper analysis the impact of economic reforms on

- a. the pattern of utilization of health care services and
- b. identifies the factors affecting choice of health care facilities based on a cross section study in Assam.

## **2. Methods**

In this paper an attempt has been made to present some preliminary results of the significant changes that occurred during 1887-88 (42<sup>nd</sup> round), 1995-96 (52<sup>nd</sup> round) and 2004 (60<sup>th</sup> round), based on data National Sample Survey Organization (NSSO) data. The paper also provides

evidences from a cross-section study in two districts of Assam namely Nagaon and Nalbari during 2014-15. The village level data is used to identify the factors affecting accessibility to public health care providers. The two districts are selected on the basis of ranking of districts based on selected socio-economic indicators of health. Further a review of literature was done to identify the forward and backward development blocks from Nalbari and Nagaon. Subsequently, Kaliabor Development Block was selected from Nagaon district and Barbhag Development Block was selected from Nalbari district. Later, from the list of revenue villages, Bamuni Pathar from Kaliabor Development Block and Balagaon from Barbhag Development Block were randomly selected for the study. A census enumeration of the village showed a total of 247 households and 278 households in Bamunipathar and Balagaon. The study collected information from 40 per cent of the households from both the villages i.e. 99 households from Bamunipathar and 111 households from Balagaon<sup>1</sup>. However, for identifying the factors affecting choice of health care providers whether public or private, the collection of data is restricted to only those who have sought care in health facilities (either government or private) thus excluding treatment through home remedial measures, self-prescribed medicines or traditional healers. The total number of such respondent from both the villages constituted of 402 respondents. A binary logistic regression model has been used to identify the various factors affecting choice of health care facilities.

### **3. Changes in the pattern of utilization of health care services in Assam: An analysis based on National Sample Survey Organization (NSSO)**

The NSSO collected data on utilization of health care services from both public and private health care providers. Based on the reports, the public health care providers include government hospitals, government clinics, government dispensaries, primary health centres (PHCs) and the community health centres (CHCs), state and central government assisted **ESI** hospitals and dispensaries. The 'private' sources on the other hand include private doctors, nursing homes, private hospitals, charitable institutions etc.

#### *3.1 Utilization of health care services for non-hospitalized treatment among the rural population of Assam:*

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<sup>1</sup> The study is a part of Ph.D. research and the sample that has been taken is a part of the total sample of the study.

It is seen that, for the country as whole, the percentage of ailments receiving non-hospitalized treatment (outpatient care) from government sources was 21 per cent in 1987-88 which declined to 19 per cent during 1995-96. However, a slight increase of 3 percentage points was noticed during 2004 i.e. from 19 per cent to 22 per cent. Among the major states the sharpest decline in the utilization of public health care services is observed for the state of Assam. The dependence on government sources for outpatient care was 40 per cent in Assam during 1987-88 which declined to 29 per cent in 1995-96 and further to 27 per cent in 2004 respectively (Table 1). The declining dependence on government sources for outpatient care cannot be supposed as a positive indicator for the state which is characterized by ‘*weak health outcome indicators*’. The high dependence on private sources is mainly because of low quality of care from the government sources. Moreover, there is crowding out of private health institutions. Those who are treating themselves in the government hospitals also has to incur a heavy amount of cost in the form of heavy out of pocket expenses in the form of purchase of medicines and drugs and outsourcing of diagnostic test to the private institutions (NSSO, 2005 cited in Ghosh 2010, Garg and Karan 2005, Garg and Karan 2008; Ghosh, 2014). According to

Table 1: Percentage of ailments receiving non hospitalized treatment from government sources (rural)

State	42 <sup>nd</sup> round (1986-87)	52 <sup>nd</sup> round (1995-96)	60 <sup>th</sup> round (2004)
Andhra Pradesh	12	22	21
Assam	40	29	27
Bihar	14	13	5
Gujarat	28	25	21
Haryana	15	13	12
Karnataka	32	26	34
Kerala	32	28	37
Madhya Pradesh	24	23	23
Maharashtra	21	16	16
Orissa	37	38	51

Punjab	12	7	16
Rajasthan	46	36	44
Tamil Nadu	28	25	29
Uttar Pradesh	*	8	10
West Bengal	16	15	19
India average	21	19	22

Source: NSSO 42<sup>nd</sup> round, 52<sup>nd</sup> round and 60<sup>th</sup> round

\*estimated are not available

Table 2: Percentage of ailments receiving hospitalized treatments from government sources (rural)

State	42 <sup>nd</sup> round (1986-87)	52 <sup>nd</sup> round (1995-96)	60 <sup>th</sup> round (2004)
Andhra Pradesh	29	23	27
Assam	83	74	74
Bihar	47	25	14
Gujarat	49	32	31
Haryana	51	31	21
Karnataka	55	46	40
Kerala	41	40	36
Madhya Pradesh	73	53	59
Maharashtra	40	31	29
Orissa	80	91	79
Punjab	45	40	29
Rajasthan	77	65	52
Tamil Nadu	55	41	41
Uttar Pradesh	52	47	27
West Bengal	76	82	79
India average	57	45	35

Source: NSSO 42<sup>nd</sup> round, 52<sup>nd</sup> round and 60<sup>th</sup> round

Ghosh (2010), the lesser developed states like Orissa, Bihar, Uttar Pradesh and Assam spend higher proportion of total health expenditure on purchase of drugs (79 per cent to 80 per cent). It has been observed that the poorer wealth quintile is spending a larger amount on purchase of drugs and medicines in comparison to the rich which shows a greater burden on the lower income strata.

### *3.2 Utilization of health care services for non-hospitalized treatment among the rural population of Assam:*

The share of population depending on government health facilities for non-hospitalized treatment was 83 per cent in 1987-88 in Assam. The percentage declined to 74 per cent in 1995-96 and it remained constant for 2004 (74 per cent) (Table 2). Although the dependence on government health facilities is very high for hospitalization cases but the rate of utilization has declined in Assam. The dependence is high because of low cost in government hospitals as compared to the private hospitals. For the state as a whole the percentage was 57 per cent, 45 per cent and 35 per cent during 1987-88, 1995-96 and 2004 respectively. This shows that there is a significant decline in the dependence on public health facilities for inpatient care for the state as a whole after initiation of health reform measures in India.

The cost of inpatient and outpatient care has increased over the years in both government and private health facilities, the increase being higher in private health sector. The dependence on private sector for hospitalization cases has been increasing in the rural areas as well. Cost of care on health also increased after privatization of 1990's. In comparison to the mid 1980's, the average cost on both inpatient cares increased in India. Based upon the NSSO 42<sup>nd</sup>, 52<sup>nd</sup> and 60<sup>th</sup> round results, Mukherjee and Levesque (2010) show that in India access of the poor to government medical facilities are declining, with simultaneous increases in costs of inpatient care. They also argue that the average costs of inpatient care in government hospitals has increased across states in India, so much so that it has exceeded the prices of essential food items resulting in net welfare losses to the poor. In other words, accessibility of government health facilities has also become difficult due to higher charges. There was also a fall in public sector utilization of healthcare facilities in poorer states such as Assam, Orissa and Madhya Pradesh (ibid, 2010).

Moreover higher dependence on private health facilities for both outpatient and inpatient care has resulted in increase in the catastrophic health expenditure among the poor and rural population. The rich benefit from having access to both better quality health services in the private sector, and to subsidized services from the government sector. The poorer sections are heavily taxed on account of low quality of public healthcare as well as non-affordability of private healthcare services (Kumar and Prakash, 2011). A large numbers of households are also pushed below poverty line because of catastrophic OOP payments. Ghosh (2010) estimates show that in India OOP payment has resulted in increase in the poverty headcount by 4 percent in 1993-94 to 4.4 percent in 2004-05. In order to protect the households from financial catastrophe the scheme of health insurance was initiated which is another form of privatization that has been openly embraced in the post reforms period. However, evidences shows that the health insurance schemes have been successful in some the specific states only (see Ahuja, 2004; Acharya and Ranson, 2005; Mudgal et al., 2005; Hasio, 2013; Selvaraj and Karan, 2012; Fan et al., 2012; Desai, 2009, Rao, 2004; Ellis et al., 2000).

#### **4. Choice of healthcare facility (a pooled regression analysis) based on cross section data**

In order to statistically test the choice of healthcare facility among residents in the study areas, a pooled logistic regression analysis was carried out.<sup>2</sup> The analysis is restricted to only those who have sought care in health facilities (either government or private) thus excluding treatment through home remedial measures, self-prescribed medicines or traditional healers. The dependent variable in this model is “whether the resident visited a government or private health facility” if yes the variable will take value 1, or 0 otherwise. For the model fit we have considered nine variables keeping in mind the composition of households and data gathered during the household survey. The explanatory variables used in the model are described in Table 5.14. The functional form of the logistic regression model is:

$$Z_i = \alpha + \beta_1(AGE) + \beta_2(SEX) + \beta_3(CS) + \beta_4(EDU) + \beta_5(HSS) + \beta_6(OH) + \beta_7(LN\_MI) +$$

<sup>2</sup> Separate regression has not been carried out for both the villages because the dependence on private health facility is very low in Bamuni Pahtar village (8 percent). This will not represent the appropriate picture and the logistic regression will not be representative.



$$\beta_8(BPL) + \beta_9(Village\ dummy) + \mu_i$$

Table 5.14 *Choice of healthcare facility, pooled regression analysis, explanatory variables*

Sl. No.	Variable	Description
1a.	AGE1	Age of the respondent (1=0 to 5 years, 0, otherwise)
1b.	AGE2	Age of the respondent (1=6 to 14 years, 0, otherwise)
1c.	AGE3	Age of the respondent (1=15 to 59 years, 0, otherwise)
1d.	AGE4®	Age of the respondent (1=60 years and above, 0, otherwise)
2	SEX	Sex of the respondent (1=Male, 0, otherwise)
3	CS	Caste of the respondent (1=SC; 0, otherwise)
4a	EDU1	Education of the respondent (1=above primary but below secondary 0, otherwise)
4b	EDU2	Education of the respondent (1=secondary and above, 0, otherwise)
4c	EDU 3 ®	Education of the respondents (1=illiterate, 0, otherwise)
5a	HSS 1	Household size (1=equal to or less than 4, 0, otherwise)
5b	HSS 2	Household size (1=5 to 6, 0, otherwise)
5c	HSS 3®	Household size (1=7 and above, 0, otherwise)
6	OH	Operational holding (1= landless, 0, otherwise)
7	LN_MI	Log of monthly income (in Rs.)
8	BPL	Availability of Below Poverty Line Card (1=Yes; 0, otherwise)
9	Village dummy	1=Bamuni Pathar village; 0, otherwise

Note: ® refers to reference category.

### *Results and Discussion*

The logistic regression is statistically significant with a significant Likelihood Ratio Test (LRCh2) of p value less than .001. The Variance Inflation Factor (VIF) values used to check multicollinearity problem shows absence of any kind of multi-collinearity problem among the explanatory variables. The count R2 is .78 and the Cragg and Uhler's R2 comes out to be .27. The independent variables which are found to have a significant causal relationship with the

choice of healthcare facility are age of the respondent, educational level of the respondent, household size and monthly income of the households<sup>3</sup>. The village dummy is also found to be positive and significant.

Table 5.15 *Logistic regression results for the pooled regression (Bamuni Pathar and Balagaon) for choice of healthcare providers*

<i>Explanatory variables</i>	<i>Maximum Likelihood estimates (MLE)</i>		<i>Marginal effects (MFX)</i>	
	<i>Coefficient</i>	<i>Standard error</i>	<i>dy/dx</i>	<i>Standard Error</i>
AGE 1	.4064	.6015	.0619	.0823
AGE 2	1.039**	.4648	.1404	.0491
AGE 3	1.041**	.3553	.1863	.0662
SEX	-.0066	.2565	-.0011	.0432
CS	-.1770	.2778	-.0299	.0472
EDU1	-.7662**	.4177	-.1311	.0716
EDU2	-.8873***	.4445	-.1643	.0879
HSS 1	-.9083***	.3887	-.1656	.0751
HSS 2	-.9129**	.3756	-.1583	.0661
OH	.1656	.2725	.0282	.0470
LN_MI	-.5735**	.2051	-.0966	.0345
BPL	-.2499	.2759	-.0419	.0460
Village dummy	1.2997***	.3586	.2125	.0547

*Log likelihood: -193.40*

*LR ch2 (13): 83.04*

*Prob>chi2: .0000*

*Pseudo R2: .17*

*Count R2: .78*

*Cragg and Uhler's R2: .27*

*Number of observations: 402*

*Note: \*\*\* Implies significant at 1percent level \*\* implies significance at 5 percent level; \*implies significance at 10 percent level.*

<sup>3</sup> Variables such as age, sex, caste, household size and monthly income has found to have an impact on choice of health care facilities (Ghosh, 2014).

The analysis shows a significant effect of age on choice of healthcare facility.  $\beta_2$  co-efficient (AGE) is found to have a positive and significant relationship with choice of healthcare facility. The result shows that there is a positive and significant relationship between the respondents with 0 to 14 years of age and 16 to 59 years of age. This implies that the probability of use of government healthcare facility is higher among these age groups compared to the elders above 60 years of age. In case of elders it is observed that most of the residents are suffering from chronic diseases and therefore had to visit private hospital as the required healthcare facilities are not available in the nearby government health facilities. The partial probability of the variables implies that if the age of the respondent is 0-14 years and 16-59 years the probability of visiting a government health facility increases by .14 and .18 points other things remaining the same. The  $\beta_4$  co-efficient (EDU) indicates that there is a negative and significant relationship between educational level and choice of healthcare facility. This implies that higher the educational level of the respondent lower is the probability of visiting a government health facility for treatment. The education variable indicates that the choice for a government healthcare facility is lower for those who have educational level higher than primary level and above secondary in comparison to those who are illiterate. The partial probability of the variables indicate that if the resident has educational level higher than primary or secondary, the probability of using government health facility decreases by .13 and .16 points, other things remaining the same. The  $\beta_5$  co-efficient (HSS) has a statistically significant and negative relationship with visit to a government health facility. It implies that those households having household members equal to 4 or 5-6 have higher probability of visiting a private health care facility compared to households with more than 7 members. The partial probability of the variables indicates that the probability of visiting a government health facility decreases by .16 points and .15 points if the household has 4 or 5 to 6 member.  $\beta_7$  coefficient (LN\_MI) has a significant and negative relationship with choice of healthcare facility. Higher the monthly income of the household, lower is the probability of visit to a government health facility. Respondents with higher income generally visit private healthcare facilities because they can afford treatment in the private healthcare facilities which is not true in case of the lower income strata. The partial probability of the variable implies that with increase in income the probability of the household visiting a government health facility decreases by .96 points. The  $\beta_9$  co-efficient (village dummy) is found to have a statistically significant and positive relationship with choice of a healthcare facility. It implies that the

residents of Bamuni Pathar village have a higher probability of visiting a government healthcare facility in comparison to the resident of Balagaon which has been already been discussed in the early part of this section.

## **5. Results:**

The analysis imply that the utilization of public health care services for outpatient care has declined drastically in Assam since the period from 1987-88 to 2004. The decline in the rate of utilization of government health facilities is mainly due to low quality of care in the government hospitals. However, the gradient is not so sharp in case of inpatient care. In case of inpatient care the dependence on government health facilities is very high but the rate of utilization has declined after the initiation of the economic reform measures. The decline in utilization of government health facilities on one hand and increase in utilization of private health facilities on the other hand has resulted in catastrophic health expenses mainly among the poor section of population. A high proportion of catastrophic health expenses have also resulted in increase in the proportion of population below the poverty line. The rural poor are deprived of quality care in the government hospitals and are compelled to visit the private hospitals although unwillingly. Lack of financial protection in the form of health insurance further deteriorates the situation. The results of the binary logistic regression model indicate that the non-poor, highly educated people have greater likelihood of using private health facilities than their counterparts.

To improve the situation the state requires greater public investment for improving the quality of care in the government health facilities. Moreover, there is a need to regulate the private health care market as majority of the rural population depends on public hospitals for treatment. The government should also focus on providing proper financial risk protection measures with viability.

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