Health insurance and health care in India: a supply-demand perspective

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Abstract: India's health care and health financing provision is characterized by too little Government spending on health, meager health insurance coverage, declining public health care use contrasted by highest levels of private out-of-pocket health spending in the world. To understand the interconnectedness of these disturbing outcomes, this paper envisions a theoretical framework of health insurance and health care revisits the existing health insurance schemes and assesses the health insurance cover in relation to the pattern of health care use using data from myriad official statistics and the recent NFHS, 2005-06. Theoretical exploration of the axis of supply-demand determinants unfolds that a complex of factors such as sparse health financing options, self-obstructing heavily risk protected insurance market and weak consumer demand contribute to the measly level of health insurance penetration in India. Health insurance cover is found to be a strong determinant of modern health care use. Regional and rural-urban disparities in health insurance and health care are significant. Health insurance coverage is positively related while public health care use is negatively related with household economic condition and education status. The complex axis of critical supply side imperfections and considerable demand side weaknesses necessitate a major health care reform with the viable financing and health care options.

Introduction

In the aftermath, of major economic reforms rolled out since 1990, the average socio-economic conditions of India's populations have been steadily improving; however, the slow progress in raising Government spending on health and improving health care services remain generic problems. The emergence of the double burden of infectious as well as the rising non-communicable diseases has meant an even greater demand for healthcare and increasing pressure on the existing health care facilities.

In India, a number of previous studies on health financing and health care use showed that the poor and deprived households were driven to spend a much larger proportion of their meager income on health care compared with socioeconomically better off households. For the poor and deprived, the burden of treatment, especially inpatient care, was disproportionately heavy. Peters *et al.,* (2002) came up with more startling observations: on average, the poorest quintile of Indians is 2.6 times more likely than the richest to forego medical treatment in the event of illness; more than 40 per cent of individuals who are hospitalized in India in a year borrow money or sell assets to cover the cost of health care; and hospitalized Indians spend more than half of their total annual expenditure on health care.

As India ventures to embrace health system reform and a liberalized health care financing system, the development of private health insurance market in the country will not leave the poor unaffected (Ferreiro, 2000; Srinivasan, 2001; Government of India, 2005). In the past three decades, the development of health care system has seen modest progress but the lack of progress in developing an assortment of health financing options remains a fundamental weakness in India. Insurance sector reform initiatives aimed to promote market driven health insurance can have an adverse effect on the poor in healthcare services utilization and access to financing of health care cost and quality (Deepa and Vinish, 2004).

In the recent past, health sector reform initiative in India– a strategic intervention to improve the performance of a health care system – is comprised of a variety of actions such as financing, payment reform, regulation, and others, which operate on either or both sides of this demand-supply identity (Berman, 1998; Mills, 2000; Rangacharya, 2001.). It follows, therefore, that successful intervention - intervention which achieves some intended objectives - will be more likely to the extent that the factors determining both consumer and provider behavior are well understood and predictable.

In this backdrop, there is considerable void of connecting empirical evidences concerning various health care financing options, the measly health insurance coverage, the absence of a national health insurance policy and, the lack of market competence to drive insurance sector growth vis-à-vis inequitable health care use. The lack of comprehensible empirical evidence based research concerning the overall penetration and socioeconomic differentials in health insurance cover in relation to health care utilisation pattern continue to drain Indian health policy makers into intricacy.

A multitude of factors may be responsible for the health care outcomes and missed opportunities of health care in India. The availability of reliable and sustainable health financing options provides the critical interface between life saving and life enhancing interventions for people who need them. Set to this context, this paper addresses a considerable gap in the growing effort to study health care and health financing in India. We explore supply-demand axis of health care and health financing options, assess health insurance coverage levels and examine the patterns of health care use and their social determinants. We further explore state variations to provide necessary insights about the

connecting pathways of health risk burden vis-à-vis coverage in health insurance and the skewed public-private health care use in India.

Analytical Framework

A framework of supply-demand determinants of health insurance and health care in India

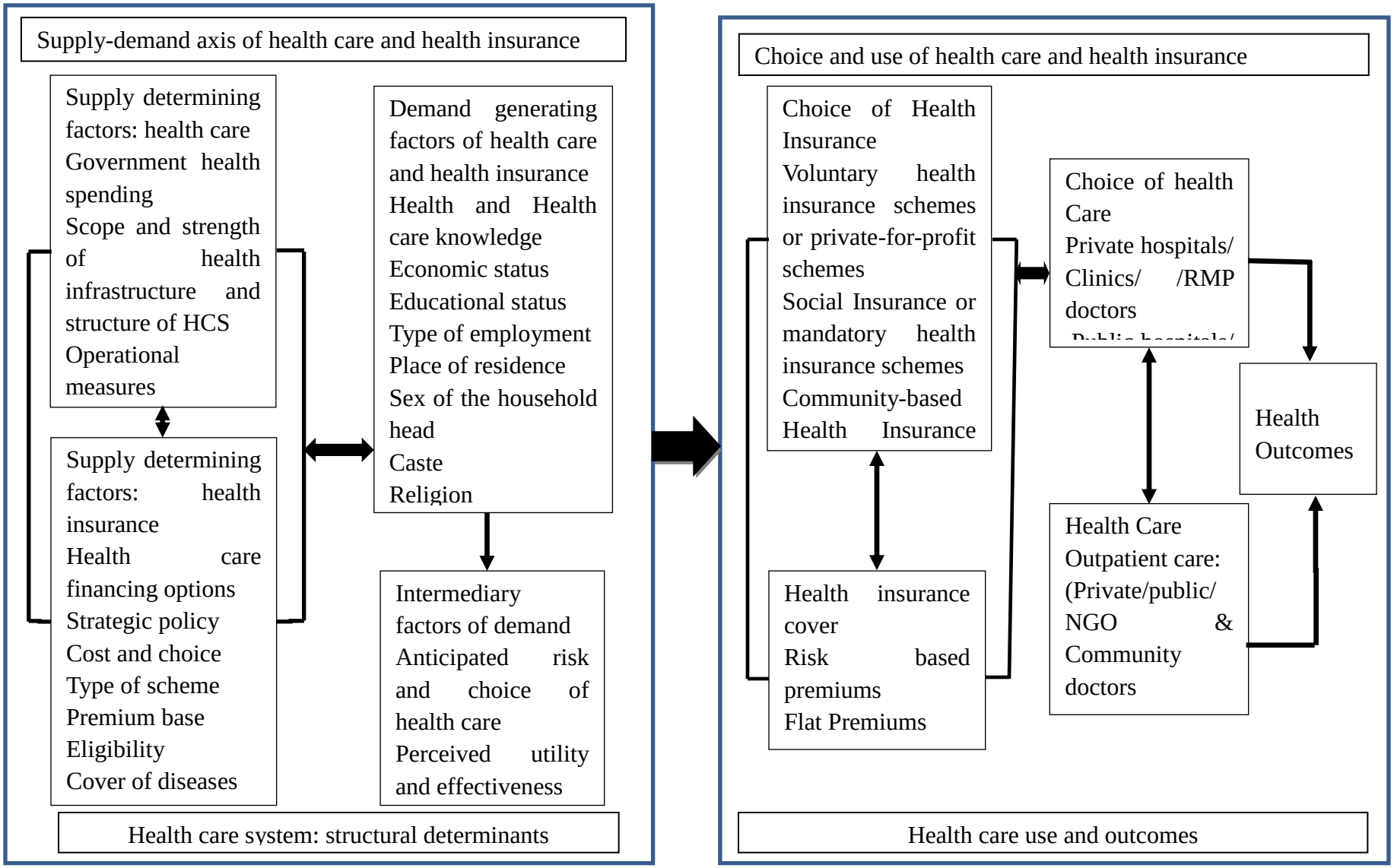
Analogous to health care system of many countries in the world, India has a dual health care sector comprising: a) public sector health care system where health care service is free or subsidized majorly through a large network of government-operated facilities and b) private sector health care system where health spending is fully paid out-of-pocket by individuals or households. Akin to the health care system, the existing health insurance schemes, apply to both public and private health care systems. However, India's health insurance penetration level remains extremely low to make any dent as a major health financing option majorly because of lack of progress in the health sector policy reform and persistent imperfections arising from the compounding effects of supply-demand in equilibrium and contextual factors.

Previous studies have alluded that the levels of health care and health insurance coverage are the outcome of the interactions between the consumer and the provider, in which the demand for a service is met by the provision (supply) of that service (Berman, 1998; Ellis *et al.*, 2000; Kutzin, 2001; Mahal, 2002; Ahuja, 2004; Wagstaff *et al*., 2009). While there is a rich literature on frameworks measuring health system performance worldwide, literature on analytical frameworks devoted to studying health care system, health financing choices and demand for health care especially in the Indian context are scarce. In this backdrop, we conceptualize a new structural framework to assess supply-demand axis of health insurance and health care in India.

A range of factors related to this: a) access to and opportunity for health care: availability, accessibility, affordability, and acceptability and b) use of health care: socioeconomic, cultural and contextual factors may either enhance or obstruct health care utilization and outcomes. In this paper, based on the above fundamentals, we proposition a framework of supply-demand determinants of health insurance, health care system and health choice and use in India. In theoretical terms, a given level of health outcome is shaped by a complex set of supply–demand related determinants of health care and the functional

relationship among those determinants. The theoretical structure of this framework unveils the critical pathways through which the supply-demand, intermediary and proximate determinants shape a) health insurance coverage and b) health care system and outcomes in India (figure 1). The principal dimensions of this framework include supply and demand side determinants that mediate the quality and choice of health finance and health care.

A Framework of Supply- Demand Axis of Health Insurance and Health Care: Illustrated with the Case of India



The structural determinants of health insurance comprise supply, demand and intermediary factors leading to the choice of health insurance. *The supply determinants of health insurance*: include type of health insurance schemes, specific products, operational measures, accessibility, premium base, choice and quality of providers, eligibility criteria, nature of subsidy (risk pooling), and reimbursement policy. *The demand determinants of insurance:* include socioeconomic, demographic and contextual (location, culture) factors. The demand determinants represent the ability of individual to choose among the competing alternative products and have considerable effects in driving health insurance coverage. Both the supply-demand determinants of health insurance are currently major limiting factors of health insurance coverage in India. *The intermediary determinants of health insurance:* include variables related to nature of health risk, perceived utility and effectiveness and behavioral attributes of individuals.

The *structural determinants of health care system, choices and outcomes* encompass more wide-ranging components of supply-demand determinants and contextual factors shaping health care use patterns including health care financial options. *The supply determinants of health care system and health outcome* consist of variables related to health care system: structure and organization, strategic policy framework, scope and strength of health interventions, operational measures, magnitude and quality of human resources for health, effective use of resources, affordability and equitable access, health system responsiveness and variables related to quality, cost, choice of health care and health care financing options. *The demand determinants* include health risk conditions, socioeconomic, demographic and contextual (location, culture) factors. Overall, the determinants of demand represent the capacity of individual to access and assess the competing alternative of health care vis-à-vis nature and intensity of health risks that will cumulatively determine the need to use health care. *The intermediary factors* comprise broadly social, political and economic environment, risk perception, perceived utility, attitudes and information on quality and choices (technology and competing alternative) of health care products.

Overall, this framework provides a broad-based theoretical and analytical paradigm to study health insurance and health care use patterns in India. This framework comprehends numerous health system and policy related research questions as an important tool of analysis.

Materials and Methods

Data Sources

In this analysis, we use data from multiple sources: a) to understand the levels of private out of pocket health expenditure and available health financing options b) to devise a comprehensible supply and demand axis of various health insurance schemes c) to explore demand determinants of health insurance cover and health care use patterns in India.

First, data from the following national and international official statistics have been used to examine available health care and health financing options, their composition and trends in India: a) National commission on Macro-economic and health report, Ministry of Health and Family Welfare, Government of India, New Delhi, 2005; b) Information available from Health Insurance Data report, 2010-2011 of Insurance Information Bureau, India; c) World Bank Report 2002 and World Health Report 2003.

Second, we use data from the latest round of National Family Health Survey (NFHS-3) conducted in 2005-06 to assess variations and socioeconomic differentials in health insurance cover and health care use pattern in Indian states. NFHS-3 had collected information on self-reported health insurance coverage representative sample of 109,041 households nationally. (for more detailed description of sampling design, see IIPS & ORC Macro, and 2007). In the household questionnaire, the respondent was asked 'whether any member of the household is covered with a health scheme and the type of health insurance scheme'. In the household questionnaire, the respondent was asked 'whether any member of the household is covered with a health scheme and the type of health insurance scheme'. In the NFHS-3, the health insurance schemes were categorized as:

- Voluntary health insurance schemes or private-for-profit commercial health insurance schemes.
- Employer –based health schemes: 1) mandatory or government run schemes such as a) employee state insurance scheme (ESIS) b) central Government health scheme (CGHS); 2) private employer-based health insurance schemes, and
- Health insurance schemes offered by non-governmental organizations or community based on health insurance.

Methods of Analysis

First, we present trend analysis of public health spending, private out of pocket expenditure, and health insurance cover with comparison of selected countries in the

world. Second, we use NFHS data on health insurance cover, and health care use for unfolding health care use patterns according to source of health insurance, health care and key socioeconomic determinants. Third, we examine the cross-state variations in health insurance cover and health care use pattern in India.

Bivariate and multivariate methods are used in this analysis. Multivariate logit regression models are estimated to assess the effect of socioeconomic factors on health insurance coverage and type of health insurance: (i) public health insurance (ESIS & CGHS) (ii) private health insurance schemes which include community health insurance programme, other privately purchased commercial health insurance and other health scheme or health insurance and, (iii) employer provided health insurance (the other health insurance through employer and medical cost reimbursement from the employer). Multivariate logit regression models have also been estimated to find the effect of health insurance and types of health insurance vis-à-vis socioeconomic demand factors on health care utilization patterns.

Results

Supply perspective of health care in India

India's public health care system is considered as the main visage of health care for the people in vulnerable socioeconomic conditions. However, despite the recent expansion and modernization efforts in public health facilities, public health care system continues to suffer from poor management, stumpy service quality and weak finances. On the other hand, private health care facilities comprising a mixed bag of both superior and substandard quality services are more expensive. As a result, in the absence of alternative health financial options, households typically have to borrow or sell assets or drain major savings to meet hospitalization costs (Gumber, 2001; Gumber and Kulkarni, 2000; Peters *et al.*, 2002). The World Bank (2002) estimated that a quarter of all Indians are pushed into poverty as a direct result of medical expenses in the incidence of hospitalization.

Government health spending versus private out of pocket expenditure in India

In India as in the past, the Government spending on health continues to be undermined during the period of economic liberalization. Despite the recent modest increases in budget allocation to both ongoing and newly launched health care programmes, Government health expenditure at just under one percent of GDP is, one of the lowest and consequently

levels of private out of pocket (OOP) health expenditures is one of the highest in the world (figure 1). Figure 2 displays that the GDP share of India's expenditure on health has been flat with sharp fluctuations during the 1990s. As a connected trend, the share of public sector hospitalized care coverage dropped from 60 percent in 1987-88 to just 40 percent in 2004, representing one thirds decline during the last two decades. During the 1990s, as an offshoot of health sector reform policy initiatives, the government health facilities have also begun to charge nominal user fees by asking patients to buy expensive drugs and diagnostics from private outlets citing non-availability of these in the state setup. Only for the most recent period, the share of public health expenditure has shown a slight increase (figure 2). However, significant state variations characterize per capita health spending and the share of private-out-of-pocket expenditure. Nevertheless, in almost all major states, public health spending comprises less than a one fourth of total health spending (figure 3).

Place figure 1-3 about here

As health care services turn more expensive, more and more people have been forced to forego treatment. Results from past studies suggested that financial reasons account for over a quarter of untreated ailments in rural areas, and over 20 percent of untreated ailments in urban areas, a sharp rise from 15 percent and 10 percent respectively. Rising healthcare cost is emerging as a foremost reason for impoverishment of people (Ferreiro, 2000; Ghosh, 2011). Estimates suggest that 39 million people in India are pushed into poverty every year due to expenditure on health and almost 80 percent of households OOP expenditure on health spending is on drugs (World Bank, 2002).

In this emerging context, studies have suggested that ensuring access to good and cheap quality or subsidized drugs can reduce the economic burden of healthcare substantially. (World Bank, 2002). Nonetheless, in the macroeconomic context of evolving economic and health reform policies, prices of drugs have been rising up steadily with little effort from the government to regulate prices, unlike most developed countries where government intervene to regulate drug prices through various measures such as bulk procurement and supply.

Unequal access to health care, lack of affordable financing options coupled with their poor health status drive deprived socioeconomic groups into more vulnerable health circumstances (Ahuja, 2004). Studies have shown that even if the government were to provide free healthcare for the poor, accessing healthcare becomes expensive on account

of substantial travel and opportunity (time and loss of earnings) cost and hidden cost on drugs and health personal, which poor families cannot afford (Naylor *et al.*, 1999; Economic Research Foundation, 2006).

Supply perspective of health insurance in India

Health insurance products have been operating in India for almost a century, but trends in the growth of the number of policies, members and claims unfold extremely meager growth (Insurance Information Bureau, 2011). The overall health insurance penetration level is too diminutive to make any significant dent as a competing health financing option. Currently, just about 10 percent of the population in India has any kind of healthcare cover, be it community insurance, employers' expenditure or commercial insurance. Existing health insurance cover is largely limited to the small proportion of people employed in the organized sector (both public and private), in addition to a negligible individual commercial insurance cover. The rest of 90 percent of Indian population engaged in agricultural and informal sector has neither heath care cover nor social security cover. As a result, health care cost is one of the major reasons for India's poor incurring debt (FICCI, 2009). The insurance companies so far have shown very little interest or lack of entrepreneurial dexterity in offering an affordable menu of health insurance products to people living in a wider spectrum of socioeconomic status including the poor (Ranson and Jowett, 2003).

The poor record of financial protection for health risks represents a paradoxical situation of both supply and demand imperfections and lack of progress in providing viable menu of health financing options in India (Rao, 2004). The available health insurance products in the market in terms of premium base, choice of providers, eligibility criteria, nature of subsidy (risk pooling) and reimbursement policy have failed to attract the vast majority of people needing health insurance coverage in the country. Fewer competitively priced product choices mean choked up supply on the one side, while low literacy, poor economic status and predominately rural residence tend to freeze demand on the other side. To comprehend the supply and demand side constrictions, based on the nature of risk pooling and ownership, below we have described the three major health insurance markets that are currently operating in India: 1) voluntary health insurance schemes or private-for-profit schemes 2) social health insurance or mandatory health insurance schemes and 3) community health Insurance scheme (CHIP).

1) Voluntary health insurance schemes (VHIS) or private-for-profit schemes. The VHIS schemes are operated by both public and private sector institutions. The public sector insurance institutions have been marketing several commercial health insurance products comprising both full premium products as well as few subsidized products for the poor. The private sector commercial health insurance products are of recent origin. The nature of commercial insurance products offered by the private sector entities is based on the premise that buyers are willing to pay the premium to an insurance agency that pools people with similar risks and insures them for health expenses. The key distinction is that the premiums are set at a level, which provides a profit to third party and provider institutions. Premiums are based on an assessment of the risk status of the consumer or of the group of employees and the level of benefits provided, rather than as a proportion of the consumer's income (Mahal, 2002; Government of India, 2011).

2) Social health insurance schemes (SHIS). These include mandatory health insurance schemes or government run health insurance schemes or employer provided health cover: SHIS is an earmarked fund set up by government with explicit benefits in return for payment. The SHIS is an effective risk-pooling mechanism that allocates services according to need and usually compulsory for a certain category of government employees where the premiums are determined by income level (and hence ability to pay) rather than level of health risk. The social health insurance model ignores expected spending when calculating premiums. Instead of high-risk individuals paying higher premiums, individuals with higher incomes pay higher premiums. The benefit packages are standardized, and contributions are earmarked for spending on health services. Subsides is used extensively across risk categories to ensure that high-risk, low-income individuals can afford to be part of social health insurance.

In India, employers in both the public and private sector provide mandatory employer-based health insurance or social security schemes through employer-managed facilities that include lump-sum payments through salaries, a) reimbursement of employee's health expenditure for outpatient care and hospitalization, b) fixed medical allowance, monthly or annual irrespective of actual expenses on health care, and c) providing insurance cover under the group health insurance policy (Government of India, 2002). Also, the employers in central and state government sectors: railways, defense and security forces, plantations sector and mining sector provide medical services and benefits to its own employees. The population coverage under these schemes is minimal, about 30-

50 million people, accounting between 3-5 percent of the total population (Mavlankar and Bhat, 2000). The two major government-run schemes include the Central Government Health Scheme (CGHS) and the Employees State Insurance Scheme (ESIS) and more details about these schemes are given in appendix 1.

3) Community-based Health Insurance Programme (CHIP or CBHI). The CBHI includes health insurance schemes operated by local bodies such as cooperative schemes, self-help group schemes and NGOs. Community-based insurance funds refer to schemes where members or service organization prepay a part of the amount each year for specified services (Devadasan *et al.*, 2006). The benefits offered are mainly in terms of preventive care, through ambulatory and in-patient care. Such schemes tend to be financed through patient collection, government grants and donations. Most providers are either NGOs or private for-profit organization and the detailed explanation about different providers their products and schemes are showed in appendix 1.

The main strengths of the CBHI schemes are that they have been able to reach out to the vulnerable sections to provide some form of health security; increase access to health care; protect the households from catastrophic health expenditures and consequent impoverishment or indebtedness. However, sustainability is an issue as these initiatives are dependent on government subsidy or donor assistance. They provide limited protection in view of the very little cross subsidy between the rich and the poor, resulting in small size of the revenue pool and coverage, which also limits the potential of obtaining a better bargain from the providers.

Demand perspective of health insurance and health care

A population needing health care may consist of two groups of individuals in terms of a) those who can afford to buy health insurance that promises a certain 'minimum' level of benefit, and b) those who cannot afford to buy the 'minimum' benefit on their own and need some public subsidy. In this setting, private health insurance market is most likely to cater to those who can afford to buy insurance. For those who cannot afford market driven private health insurance, alternate models of health insurance with need based public subsidy are necessary. However, while operationalizing such a model, the conceptual distinction gets blurred. Important policy questions that arise here are:

How best to target and reach the section of the population that need subsidy?

What if the government supports voluntary (commercial) health insurance rather than expanding the existing social insurance schemes?

Both the above questions lead to the curious question as to how different types of health insurance would operate across different socio-economic spectrum of the population.

To understand the dynamics of health insurance coverage by background characteristics, we estimated logit regression models. Table 1 presents the estimated odds ratios of selected socioeconomic predictors on households, which have at least one member covered by health insurance. Controlling for other predictors, rural households are significantly less likely to have at least one member covered by any health insurance (OR=0.70, $p<0.001$) than urban households (OR=1). The more educated is the head of household, greater is the likelihood that at least one member of the household being covered with a health insurance scheme. Members of households, where household head has 10 or more year education are twice as likely to have health insurance (OR=1.99, $p<0.001$) as compared to those who have no education (OR=1). By sex of the household head, household members belonging to female headed households are significantly less likely to have health insurance cover (OR=0.76, $p<0.001$) compared with those belonging to male headed households (OR=1). By caste, OBCs and Other castes are less likely to have health insurance cover (OR=0.76, $p<0.001$ and OR=0.95) than Schedule Castes (OR=1). This is possible in case of any health insurance as in India, as community health insurance programme s are more likely to target socioeconomically deprived Scheduled Caste under the health insurance coverage.

Household members headed by Muslims is significantly less likely to have health insurance (OR= 0.46, $p<0.001$) than households belong to other religion (OR=0.88 and OR=1.00). Huge differences are indicated in the likelihood of health insurance coverage between lower and upper wealth quintile. Compared with households in the states of north, central and northeastern regions, households in the states of east, west and south regions are more likely to have at least one member in the household with health insurance (OR=1.15, $p<0.01$, OR=1.38, $p<0.001$ and OR=1.33, $p<0.001$). Overall, the logit estimates reveal the residence, education, household wealth and region as influential predictors of health insurance coverage among household members.

Table 1 also presents the estimates of separate logit regression models predicting the influence of background characteristics on the type of health insurance coverage. The odds of using public health insurance (SHIS) are greater among urban (OR=1) than rural households (OR=0.74, $p<0.001$); vice-versa, the odds of using private health insurance is

somewhat higher in rural (OR=1.02, p>0.05) than urban households (OR=1). The likelihood of having private health insurance is highly pronounced among the households with educated household head (OR=3.16, p<0.001) than the household with no educated household head (OR=1). Similarly, the odds of public health insurance coverage are greater among the higher educated household heads (OR=1.98, p<0.001) than household heads with no education (OR=1). By caste, the likelihood of having public health insurance is lower among other backward castes and other castes (OR=0.74, p<0.001 and OR=0.71, p<0.001) compared with Schedule Tribe and Schedule Caste (OR=1.26, p<0.05 and OR=1). In contrast, the likelihood of having private health insurance is twice greater among other backward and other castes than Schedule Caste and Schedule Tribe. Compared to households in states of the northern region, households in the states of southern and eastern region are less likely to use public health insurance (OR=0.37, p<0.001 and OR=0.71, p<0.001). However, in case of private health insurance, south, west and northeast regions indicate twice higher likelihood than north and central regions. Overall, public health insurance is more pronounced among socially and economically deprived households, while private health insurance is predominant among socio-economically advanced households.

Place Table 1 about here

The principal challenge for India is building a sustainable health care system to tackle health care needs of those who need it. The chief component and eventual outcome of the health care system are the healthcare utilization patterns. To unravel this, we have examined the health care utilization patterns by key background characteristics of households. Table 2 presents the percentage of households by source of health care facility and key background characteristics. Public health care facilities are used much more prominently by rural households, not (or less) educated and deprived socioeconomic status population categories. On the other hand, private health care facilities are more widely used by households in urban areas, with educated heads and better-off socioeconomic category.

Overall, of those who used health care, 65 percent of the households among them used private health facility compared with 35 percent of households which used public health facility. Overall, majority of the Indian adults either prefer or forced to access private doctor or private hospital when they get sick. This paradoxical situation is most likely outcome of low government spending in health, the rising double burden of diseases,

the limited coverage of social insurance, increased vulnerability, heightening insecurities and a sense of deprivation among those too poor to afford private treatment.

Place Table 2 about here

To examine the linkage between health insurance and health care, we have estimated the logit regression model to find the effect of health insurance on modern health care use and type of health care use. Results in table 3 reveal that when household member becomes sick, households with a person covered with any health insurance are much more likely to use a modern health facility (OR=2.31, $p<0.01$) than those without any health insurance (OR=1). Examination of the effect of type of health insurance on the type of healthcare use reveals that the effect of private health insurance on use of private healthcare is much greater (OR=3.11, $p<0.001$) than the effect of public health insurance on use of public healthcare facility. (OR=2.80, $p<0.001$). However, the effect of public health insurance coverage on use of public healthcare is also significantly high.

Place Table 3 about here

Discussion and Conclusion

In this paper, we presented refreshing analytical insights concerning the supply-demand axis of India's health financing and health care choices vis-à-vis the levels and patterns of health insurance cover and healthcare utilization for India and the states. Overall, based on population based national survey data, this analysis revealed the dismal coverage in health insurance coverage, declining level of public health care use contrasted by increasing reliance on private health care facility. Second, results revealed a mixed pattern of considerable regional disparity in health insurance coverage and health care use pattern with more pronounced variations by demand related socioeconomic factors.

By demand related socioeconomic factors, rural-urban disparities are significant. Other major social determinants of health insurance coverage and public versus private health care use include education, household economic condition, caste and religious affiliation. Public health insurance is more pronounced among the socially and economically deprived households, while private health insurance is predominant among socio-economically advanced households. Similarly, public health care facilities are much more widely used by rural households, not (or less) educated and deprived socioeconomic

status population categories. In contrast, households in urban areas, with educated head and better-off socioeconomic condition, more commonly used the private health facilities.

Health insurance coverage is positively related; while public health care use is negatively related with household economic condition and education status.The positive effect of private health insurance on use of private healthcare use was much greater than the positive effect of public health insurance on the use of public healthcare facility. However, the effect of public health insurance coverage on use of public healthcare was also significant. These results amply suggest that health insurance and type of health insurance are the key predictors of healthcare and type of healthcare use in India.

The theoretical exploration of the axis of supply-demand determinants unfolds that a complex of factors such as sparse health financing options, self-obstructing heavily risk protected insurance market representing supply side vis-à-vis poor socioeconomic background resulting in weak consumer demand contributed to the measly level of health insurance penetration in India. The state and socioeconomic disparities in health care use pattern suggested an emerging symmetric connection with the state and socioeconomic disparities in health insurance coverage. First, the states with dominant and major share of public health care use indicated relatively lower levels of health insurance coverage and vice-versa the states with predominant use of private health care system indicated greater coverage of health insurance. Second, rural households, households headed by those with no education and belonging to socially backward caste tend to rely on public health insurance and health care facilities. By contrast, urban households and socioeconomically better of households tend to use private health insurance and health care facilities.

Beyond these theoretical attributions, in this paper, we have documented extensive range of supply-demand weaknesses and cumulative failures that characterize health care and health insurance in India. These results have demonstrated that health insurance and health care use rates in India are chiefly the outcome of supply-demand axis of health insurance and health care and that the complex axis of supply-demand imperfections are major barriers to improve health. This suggests that, the health system reform and improving health financing options remain daunting tasks warranting strategic policy plan to improve health. India's newly articulated health policy goals ought to be concerned with improving health status of population addressing both efficiency and equity dimension as well as with the protecting of households from financial catastrophe driven by illness (Government of India, 2002).

A recent project initiative by India's planning commission articulates bringing all central health financing schemes under one umbrella (Reddy et al., 2011). These policy challenges are entrenched in two fundamentals: 1) providing universal health security and insurance cover for growing double burden of diseases that demands large amount of financial outlays and 2) establishing an acceptable framework to determine a menu of health financing options for diverse socioeconomic segments of population with varying proximity to health care. The close nexus between type of health insurance and type health care use is a clear indication of the potential for developing national health insurance as a major programme of health financing with space for both social health insurance (SHIS) as well as commercial health insurance schemes (VHIS).

In recent times, worldwide several countries have been adopting alternative models of national health plans for universal health care. India may gain by embracing the best blended model for launching a) national health care system agency and, b) national health insurance agency. The important challenges in India's pursuit to usher in universal health care and health insurance are: a) strategic operational plan to target and reach all segments of the population for universal health care services and b) rolling out a universal health protection policy with health insurance cover based on varying paying capacity of India's hugely heterogeneous population.

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Table 1. Logit regression model estimates: odds ratios of health insurance coverage and type of health insurance coverage among those households having health insurance coverage

Background characteristic	At least one member in a household has some health insurance	Odds of having a particular type of health insurance among households with at least one usual member is covered by a health scheme					
		Public insurance[1]		Private insurance[2]		Insurance through Employer[3]	
	OR	OR	SE	OR	SE	OR	SE
Residence							
Urban@							
Rural	0.70***	0.74***	0.05	1.02	0.06	0.95	0.06
Education of household head							
No education@							
<5 years complete	0.98	0.96	0.09	1.12	0.11	1.26	0.13
5-10 years complete	1.19**	1.38***	0.07	1.14***	0.09	2.00***	0.10
10+ years complete	1.99***	1.98***	0.08	3.16***	0.09	4.06***	0.11
Sex of household head							
Male@							
Female	0.76***	0.81**	0.06	0.94	0.07	1.00	0.08
Caste/tribe of household head							
SC@							
ST	1.51***	1.26*	0.10	1.12	0.14	0.92	0.14
OBC	0.76***	0.74***	0.06	1.30*	0.09	0.89	0.09
Other	0.95	0.71***	0.06	2.01***	0.09	1.14	0.08
Religion of household head							
Hindu@							
Muslim	0.46***	0.44***	0.09	0.51***	0.09		
Christian	0.88	0.61***	0.10	0.62***	0.11	0.45***	0.12
Other	1.00	0.80*	0.08	1.56***	0.90	0.54***	0.12
Wealth index						1.28*	0.10
Lowest@							
Second	4.62***	4.38***	0.35	7.20***	0.43	2.58**	0.40
Middle	14.17***	14.07***	0.33	13.55***	0.42	7.67***	0.37
Fourth	27.18***	30.97***	0.32	18.88***	0.41	13.50***	0.36
Highest	73.40***	72.86***	0.33	49.02***	0.42	30.15***	0.36
Number of de jure household members							
0-4@							
5-10	0.94	0.95	0.04	1.06	0.05	1.13**	0.05
11+	0.99	0.91	0.13	1.38*	0.14	0.85	0.20
Region							
North@							
Central	0.76***	0.96	0.06	0.91	0.09	1.05	0.10
East	1.15**	0.37***	0.09	1.04	0.10	2.26***	0.09
Northeast	0.61***	1.05	0.06	2.03***	0.07	1.32**	0.09
West	1.38***	0.98	0.07	1.43***	0.08	1.68***	0.09
South	1.33***	0.71***	0.06	2.23***	0.07	2.46***	0.08
Omnibus Test of Model Coefficients		2882.450***		2176.302***		390***	

Note: While it was possible to report more than one health insurance scheme, 98 percent of households with coverage reported only one type.

[1]Employee state insurance scheme (ESIS) and Central government health scheme (CGHS)

[2]Community health insurance programme, other privately purchased commercial health insurance and other health insurance/scheme

[3]Other health insurance through employer and medical reimbursement from employer

*** p<0.001; ** p<0.01; * p<0.05

Table 2. Percent distribution of households by type of source of health care that household members generally use when they get sick, according to selected background characteristics, India, 2005-06

Background characteristic	Public medical sector				Private medical sector				Other source[3]
	Government/ municipal hospital	Government dispensary/ UHC/UHP/ UFWC	Other[1]	Total	Private hospital	Private doctor/ clinic	Other[2]	Total	
Insurance type									
Public	-	-	-	40.9	-	-	-	57.7	1.4
Private	-	-	-	19.6	-	-	-	78.3	2.1
Others	-	-	-	27.8	-	-	-	69.9	2.3
Residence									
Urban	22.6	1.9	5.1	29.6	20.5	45.9	3.1	69.5	0.9
Rural	12.1	1.7	22.9	36.8	13.8	36.3	12.4	62.5	0.7
Education of household head									
No education	13.9	1.8	20.4	36.1	12.8	37.8	12.7	63.2	0.7
<5 years complete	16.4	1.7	22.3	40.3	13.8	33.6	11.7	59.1	0.6
5-10 years complete	17.3	1.9	17	36.3	15.7	39.3	7.9	63	0.7
10+ years complete	15.6	1.7	9.6	26.9	22.4	44.9	4.8	72.1	1.1
Sex of household head									
Male	15.2	1.8	17.4	34.4	16.1	39.7	9.1	64.9	0.7
Female	17.2	1.9	15.7	34.7	15.4	37.8	11.1	64.3	1.0
Caste/tribe of household head									
SC	17.2	1.6	17.8	36.7	12	38.7	12.1	62.8	0.5
ST	14.5	2.7	34.7	51.9	8.5	29	8.9	46.4	1.7
OBC	14.7	1.3	15.7	31.7	18.9	41.5	7.3	67.7	0.6
Other	15.7	2.3	13.5	31.4	16.9	40.5	10.3	67.8	0.8
Religion of household head									
Hindu	15.2	1.6	17.8	34.5	16.1	40	8.7	64.7	0.8
Muslim	15.8	2.3	15.1	33.1	12.5	38.4	15.3	66.3	0.6
Christian	26.2	4.1	13.9	44.1	31.2	18.4	4.6	54.2	1.7
Other	14	2.8	11.4	28.2	14.7	48.4	7.3	70.4	1.4
Wealth index									
Lowest	10.5	1.4	27.5	39.4	7	36	16.8	59.9	0.7
Second	13.4	1.5	22.3	37.2	11.2	38	13.1	62.2	0.6
Middle	18.3	2.1	18.6	39	15.9	35.4	9.1	60.4	0.6
Fourth	20.1	2.2	11.6	33.9	19.5	40.4	5.4	65.3	0.8
Highest	15.6	1.9	5.1	22.6	26.6	47.5	2.2	76.4	1
Household structure									
Nuclear	16.5	1.9	17.3	35.7	16.2	37.8	9.5	63.5	0.8
Non-nuclear	14	1.7	16.8	32.5	15.6	42	9.2	66.8	0.7
Number of de jure household members									
0-4	17.7	1.9	16.4	36.1	18.5	35.7	8.9	63	0.9
5-10	13.5	1.7	18	33.2	13.5	42.8	9.9	66.2	0.6
11+	9.3	1.5	14.2	25	12.4	52	9.9	74.3	0.7
Region									
North	19.7	10.3	16.9	48.1	10.9	36.1	4.4	51.4	0.5
Central	9.5	0.7	19.5	29.7	6.1	54.8	8.8	69.7	0.6
East	11.7	1.1	20.8	33.5	6.1	38.7	20.5	65.3	1.3
Northeast	41.3	4.3	30.1	75.8	7.3	11.1	3.9	22.3	1.9
West	13.8	1.6	13.6	28.9	13.4	56.0	0.2	69.7	1.4
South	26.8	2.5	11.9	41.2	38.5	16.9	2.7	58.1	0.7
Total	15.5	1.8	17.1	34.4	16	39.5	9.4	64.8	0.8

Note: Total includes households with missing information on caste/tribe and religion of household head, which are not shown separately. UHC = Urban health centre; UHP = Urban health post; UFWC = Urban family welfare centre

[1]Includes Community health centre (CHC), rural hospital, Primary health centre (PHC), Sub-centre, *Anganwadi*, Integrated child development services (ICDS) centre, government mobile clinic, and other public medical centre

[2]Includes Private paramedic, *Vaidya/hakim*, homeopath, traditional healer, pharmacy/drugstore, *Dai* (Traditional birth attendant), and other private medical sector

[3]Include Nongovernmental organization or trust hospital/clinic, shop, home treatment and any other source

Table 3. Logit regression model estimates: Odds ratios for utilization of modern healthcare facilitity by health insurance coverage in India, 2005-06

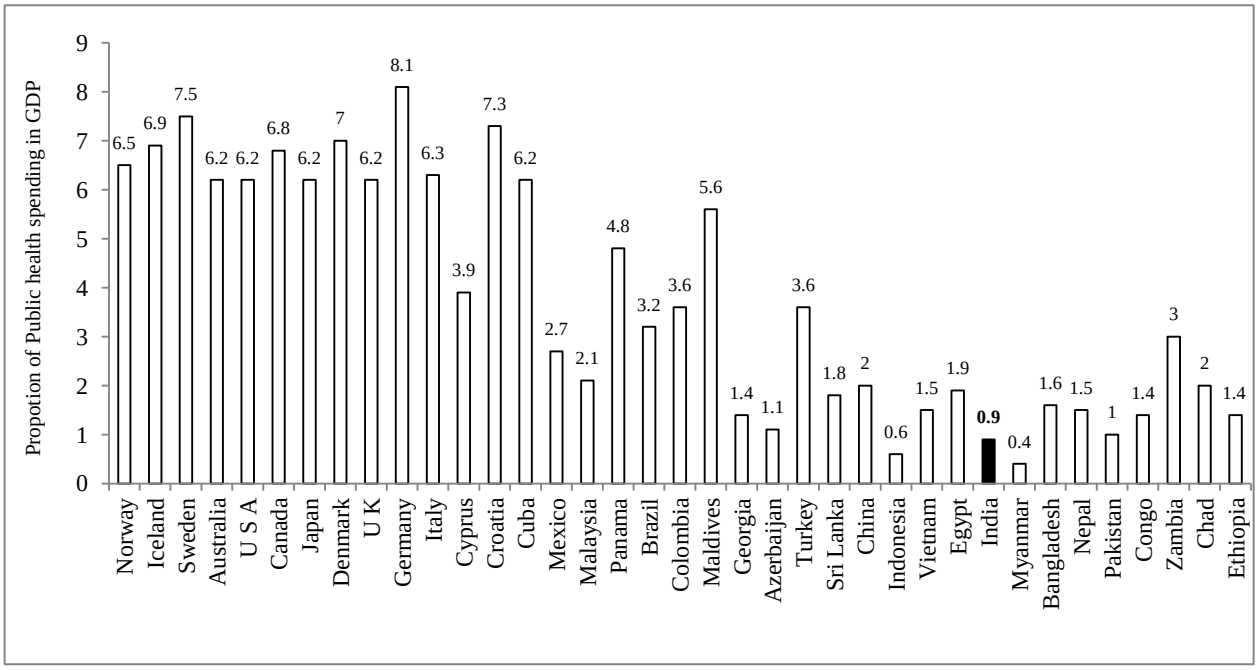
Background characteristic	Visiting any modern health facility[1] when any household member sick [2]		Visiting any modern health facility[1]					
			Public[2]		Private[2]		Others[2]	
	OR	SE	OR	SE	OR	SE	OR	SE
At least one person in the household has some health insurance								
No								
Yes	2.31**	0.25	NC		NC		NC	
Type of health insurance coverage								
Public								
No								
Yes	1.49*	0.21	2.80***	0.06	0.38***	0.06	0.68*	0.22
Private								
No								
Yes	2.20***	0.15	0.59***	0.06	3.11***	0.04	0.74	0.44
Employer								
No								
Yes	0.82	0.21	2.01**	0.08	0.50***	0.07	1.22	0.23
CHIP and others								
No								
Yes	1.36	0.44	0.85	0.14	1.20	0.13	1.05	0.39
Omnibus Test of Model Coefficients	590**		2569.102***		3002.210***		670.08**	

Note: 1. Modern Health Facility includes: Govt./Municipal hospital, Govt. dispensary, UHC/UHP/UFWC, CHC/Rural Hospital/PHC, Sub-centre, NGO or trust hospital/clinic, Private hospital, Private doctor/clinic. Some other modern health facilities are excluded from the analysis because in those facilities use of health insurance is not possible or required.

2.All four models are controlled for other predictors such as place of residence, sex of the household head, caste and religion of household head, household economics status, educational status of the household head, number of dejure members of households and region.

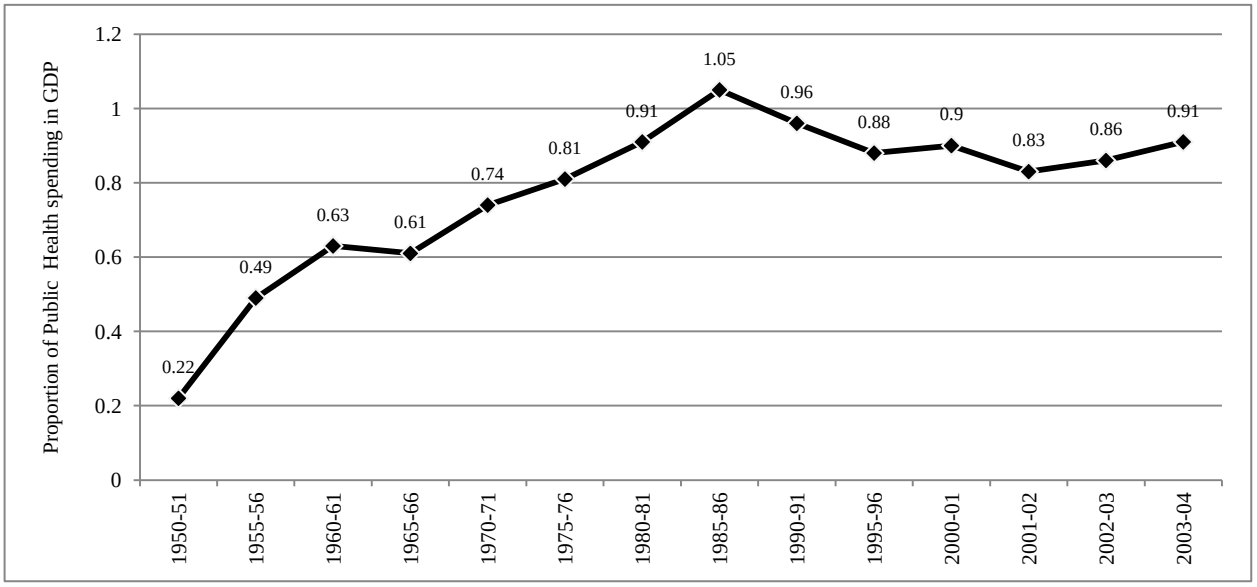
3.NC-Not Considered

*** p<0.001; ** p<0.01; * p<0.05



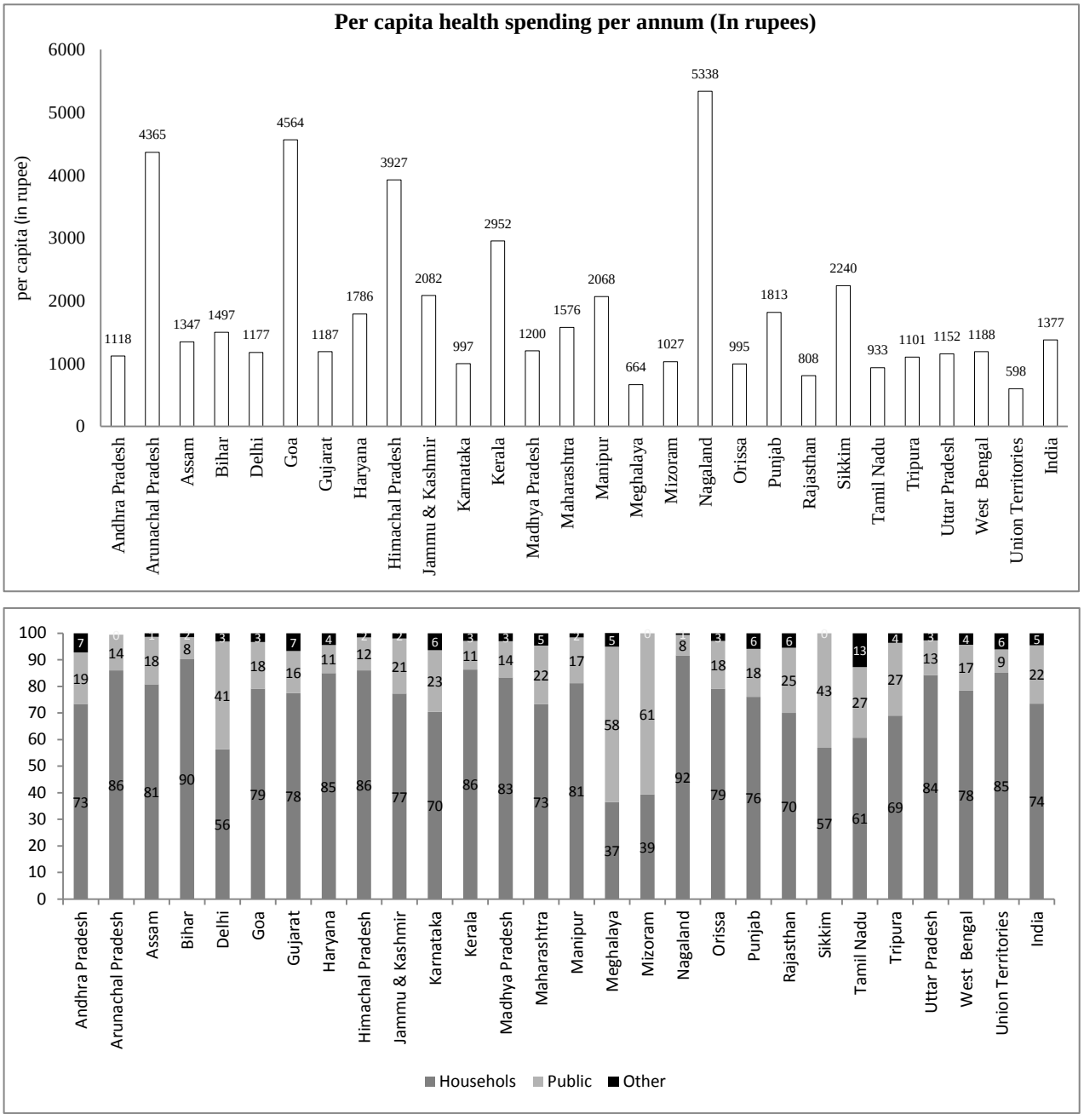
Source: World Health Report 2003, Human Development Report 2003 & UNTCAD Report 2002

Figure 1. Percentage share of government health spending in gross domestic product (GDP) of selected countries, 2001.



Source: Government of India, 2005

Figure 2. Trends in government health spending as percentage share in gross domestic product (GDP) in India, 1950-2004.



Source: Government of India, 2005
Note: Other health spending sources includes NGOs and charity hospitals etc.

Figure 3. Per capita health spending per annum and percentage share by source of health spending in India and states, 2004-05.

Key Features	Voluntary health insurance schemes (market products)		Social Health Insurance (SHI)	Insurance offered by NGOs / community based health insurance
Owners of the Health Insurance	Government	Private companies	Government	NGOs/Trust Hospitals/ Micro Finance Institution (MFIs)
Schemes	General Insurance Corporation (GIC) and its four subsidiary companies: National Insurance Corporation, Assurance Company, Oriental Insurance Company and United Insurance Company. Life Insurance Corporation (LIC) of India.	Tata IAG Bajaj Alliance, ICICI, Royal Sundaram, and Cholamandalam amongst others are offering health insurance schemes	Central Government Health Scheme (CGHS), Employees State Insurance Scheme (ESIS), Universal Health Insurance Scheme (UHIS). State government sponsored schemes	Community Based Health Insurance Schemes (CBHIs)
Provisions	The General Insurance Corporation offers Personal Accident policy, Jan Arogya policy, Raj Rajeshwari policy, Mediclaim policy, Overseas Mediclaim policy, Cancer Insurance policy, Bhavishya Arogya policy and Dreaded Disease policy LIC offers Ashadeep Plan II and JeevanAsha Plan II.	Bajaj Alliance offers three health insurance schemes namely, Health Guard, Critical Illness Policy, and Hospital Cash Daily Allowance Policy. Provides cash less benefit and medical reimbursement of hospitalization expenses (pre and post-hospitalization) at various hospitals across the India. ICICI Lombard offers Group Health Insurance Policy	CGHS: 1. First-level consultation and preventive health care service through dispensaries and hospitals under the scheme, 2. Consultation at a CGHS dispensary / polyclinic or CGHS wing at a recognized hospital. 3. Treatment from a specialist through referral, emergency treatment in private hospitals and outside India. ESIS: Depending on 'allotment' as per the ESI Act. 1. Outpatient medical care at dispensaries or panel clinics, 2. Consultation with specialist and supply of special medicines and tests in addition to outpatient care; 3. Hospitalization, specialists, drugs and special diet. 4. Cash benefits: Periodical payments to any insured person in case of sickness, pregnancy, disablement, or death resulting from an employment injury.	Three type of provisions 1) Dual role of providing care and running the insurance programme (e.g. ACCORD, VHS). 2) NGO is the insurer, purchases care from independent providers (e.g. Tribhuvandas Foundation, DHAN Foundation) 3) NGOs plays the intermediate role of agent purchasing care from providers and insurance companies (TPA, e.g. SEWA, Karuna Trust, BAIF). The benefits offered are mainly in terms of preventive care, though ambulatory and in-patient care is also covered
Premium Based on	Premiums are calculated based on age and sum insured	Actuarial Risk (Age, Sex, Disease)	Premiums based on income CGHS: Pay/pension Contribution ESIS: All contributions are deposited by the employer.	The premium are usually flat rate
Choice of Providers Eligibility and Coverage	5- 80 years (children 3-5 years covered with their parents)	Bajaj Alliance and ICICI – 5 to 75 year (not allowing entry to those over 55 year age) mostly restricted in HMO system. Royal Sundaram- no age limit apply	CGHS: Employees of the Central Government (excepting railways, Armed Forces pensioners and Delhi Administration), pensioners, widows of Central Government employees, Delhi Police employees, Defense employees and dependants residing in 24 specified locations ESIS: Employees (and dependants) working in establishments employing ten or more persons (with power) or twenty or more persons (without power) and	Typically targeted at poorer populations living in communities. Often there is a problem with adverse selection because of a large number of high-risk members, since premiums are not based on assessment of individual risk status.

			earning less than Rs. 6 500 per month.	
Selection and Refusals	Do occur	Do occur. Pre-existing diseases are excluded at time f taking policy for the first time.	These are mandatory for central and state government employees	Exemptions may be adopted as a means of assisting the poor, but this will also have adverse effect on the ability of the insurance fund to meet the cost of benefits.
Reimbursement	Provides for reimbursement of medical expenses	Based on costs and per cases/procedure basis	CGHS: Reimbursement of consultation fee, for up to four consultations in a total spell of ten days (on referral). Cost of medicines. Charges for a maximum of ten injections. Reimbursement for specified diseases ESIS: Does not allow reimbursement of medical treatment outside of allotted facilities. For example, the Employees. State Insurance Act 1948 states that entitlement to medical benefits does not entitle the insured to 'claim reimbursement for medical treatment.	Definite benefit package: preventive care, in-patient care
Nature of Subsidy (Risk Pooling)	From Healthy to Sick	healthy to sick, high income to low income, young to old, small families to big families	The benefit packages are standardized and contributions are earmarked for spending on health services	Premiums are not based on assessment of individual risk status
Nature of Competition	Not much	Between companies	No competition	No competition
Effect of medical costs	Highly inflationary	Highly inflationary	Highly inflationary	Highly inflationary
Nature of Regulation	By government	By Insurance Regulatory Development Authority (IRDA)	By government	Self-Regulatory

Source: Mahal, 2000; Malvankar & Bhat, 2000; Govt of India, 2002; Ahuja, 2004; Devadasan et al., 2004; Reddy et al. 2010

Appendix 1. Health insurance schemes and their key feature in India