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Barriers of Mistrust

Public and Private health care providers
in Madhya Pradesh, India

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Abstract:

Background: In India, the foundations for a public role in the health sector were set at the time of her independence in 1947. Like other former colonies emerging from the war, India envisioned heavy state involvement in the provision of health services to all. The private health sector, at the time was limited to a few mission hospitals and some practitioners of Indian systems of medicine. Since then, there has been the steady growth of a heterogeneous, popular private health sector based on fee-for-service payments; so that now 93% of all hospitals and 85% of all qualified physicians are in the private sector.

Aim: The thesis aims to study private and public health care providers and their characteristics in the province of Madhya Pradesh, India. Associations between provider distribution (both sectors) and social, demographic and economic characteristics of different districts of the province are also studied. The thesis also explores perceptions that policy makers in each health sector (public or private) have towards the other.

Methods: In 2004, a survey to map all health care providers serving the 60.4 million people living in the province's 394 towns and 52117 villages (spread over 304000 sq. km) was done in collaboration with the Department of Public Health and Family Welfare, Government of Madhya Pradesh (Paper I) as part of the development of a management information system in the province. Providers were identified regardless of qualification and responded to a brief questionnaire administered by trained interviewers. The distribution of these providers in the province was analyzed (Papers II and IV). To study associations, background socioeconomic and demographic characteristics were obtained from secondary data sources, including the Census of India, government department records and the Madhya Pradesh Human Development Report. In particular, possible statistical associations between provider density and vulnerable population subgroups (the scheduled castes and tribes) were studied (Paper V). To explore perceptions that policy makers in the public and private health sectors had of each other (in terms of the motivations, kind of clients served, the attitudes of each sector toward the other), in-depth interviews with 16 provincial policy makers in the public and private health sectors were done (Paper III).

Results: A total of 263,309 providers were identified. A typology was developed based on qualification. Of the 24,807 qualified physicians identified, 19,176 (77.3%) practiced in urban areas (where 26% of the population resides). Overall, three times as many physicians worked in the private sector as in the public sector. Private and public physicians were more densely (12 times and 3 times respectively) located in urban than in rural areas. Only 12.8% of qualified physicians practicing solo in the province were women. Access to women physicians was lower in the less-urban districts. In the case of the 94,019 qualified non-doctors (70% private), 67,153 (71.5%) served in rural areas, with a similar density in rural and urban areas. Only 3.4% were women. In addition, 55,393 traditional birth attendants (99.9% women) and 89,090 unqualified providers (80% men) were enumerated. Multiple formal and traditional systems of medicine were practiced. Most providers (84.4%) and institutions (94.5%) functioned for-profit. All provider densities were negatively correlated to scheduled caste proportions and positively to scheduled tribe proportions in the districts.

With regard to perception, policy makers in the public and private health sectors perceived the other sector with a degree of mutual suspicion; morality and value conflicts between the two sectors were evident. The barriers of mistrust between the public and private sectors, which hinder true dialogue, are complex. They have social, moral and economic bases. The best chance of addressing these barriers is through necessary structural change, before any real long term significant partnership between the two sectors is possible.

Conclusions: The thesis highlights the heterogeneity and dominance of the private health sector, and the distribution of different provider groups in rural and urban areas/districts. Rather than an absolute shortage of manpower, maldistribution seems a problem here. Access to women providers is low, important in a setting where women would prefer seeing women providers. The possibility that scheduled castes might have lower access to health care providers than the rest of the population is presented, a finding with important political implications. The barriers to trust between the public and private health sectors in the setting are complex. Addressing these as a step to making real collaboration possible, calls for deeper more structural changes in the working of the health system, including a redressal of the regressive fee-for-service payment mechanism. The government must consider some form of health insurance for more vulnerable groups of people.

Keywords: public private health care, health systems, India, scheduled castes, scheduled tribes, health policy

List of original papers:

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- III. De Costa A, Johansson E, Diwan V: **Barriers of mistrust – Public & private health sectors perceptions of each other in Madhya Pradesh, India.** *Qual Health Res* 2008 Jun;18(6):756-66.
- IV. De Costa A, Eriksson B, Diwan V: **The maldistribution of private health care providers in Madhya Pradesh province, India: dimensions and policy options** (Submitted)
- V. De Costa A, Eriksson B, Al-Maniri A, Diwan V - **Where are health care providers? Exploring relationships between context and human resources for health Madhya Pradesh province, India** (Submitted)

Definitions:

Public health care: Health care that is delivered by health providers owned and run by the state and financed through public funds. Public health services provide both public health interventions and curative services to individuals.

Private health care: Health care that is delivered by privately owned health care providers and financed through private sources, mostly out-of-pocket.

Health care providers are defined as those persons providing health care to people presenting with symptomatic illness episodes.

Health sector: refers to the overall health sector, including the public and private except where specifically mentioned.

Indian Systems of Medicine and Homeopathy: Indian systems of medicine comprise a number of indigenous systems including ayurveda, unani, homeopathy, siddhi and other systems. Full recognized licensed physician qualifications are awarded by universities in either ayurveda, unani or homeopathy. The Department of Indian Systems of Medicines and Homoeopathy (ISM & H) was established in the Ministry of Health & Family Welfare, Government of India, in March, 1995. It currently functions as the Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy. Details on each of the systems can be found at the official website of the Department of Indian Systems of Medicine at <http://indianmedicine.nic.in/>

Allopathy: Refers to western conventional medicine. It is a term coined in the early 19th century by Samuel Hahnemann, the founder of homeopathy, as a synonym for mainstream medicine. It was used by homeopaths to highlight the difference they perceived between homeopathy and conventional medicine. In India, the term is commonly used today to distinguish western medicine from other existing Indian systems of medicine.

Scheduled castes (SC) and scheduled tribes (ST) are those communities that were historically subject to social disadvantage and exclusion. They are accorded special status by the Constitution of India (they are listed in a schedule) and are recipients of special social benefits as part of a national program of positive affirmation.

Scheduled Tribes (83 million or 8.5% India's population) are characterized by their physical isolation in forest regions. In Madhya Pradesh, 31% of the land area is forest cover; this province has the highest number of ST persons in the country.

SC (165 million or 16% of India's population) is meant to include 'ex-untouchables'.

Unlike the tribal communities, SC communities have been "hierarchically interdependent" on the upper caste population. They were and are very much part and parcel of the economy of land and agriculture on which most parts of India is based.

While the SC population is relatively dispersed, about 90% of the ST are found concentrated in a few geographically contiguous provinces of the country (Orissa, Madhya Pradesh, Chattisgarh and Jharkhand).

Two thirds of India's bonded laborers (essentially chronically poor with a high likelihood of intergenerational transmission of poverty) are from these groups (SC or ST).

Province: India is divided into 28 provinces and 7 union territories. A province is also referred to as a state. These two terms have been used interchangeably in this thesis.

States have their own government, whereas union territories (much smaller) are administered by the Central government.

Urban and less-urban districts: In this thesis, the districts of Madhya Pradesh have been classified into either of these two categories based on the proportion of urban population. A cut off of 50% has been used, giving 4 urban and 41 less-urban districts. This is further explained on page 29.

Lower middle income countries: refers to the 54 countries classified into this income group (between 936 -3905 USD per capita) by the World Bank. India, China and Sri Lanka fall into this group from South Asia. India entered this group as recently as 2007, being classified as low income prior to that year.

Poverty Line: The poverty line definitions referred to in this thesis are the Government of India measures. (Not the World Bank's definition of the poverty line which is US\$ 1/day/person or US \$365 per year). The Indian official estimates of the poverty line are based on a norm of 2400 calories per capita per day for rural areas and 2100 per capita per day for urban areas. As of December 2005, the poverty lines after adjusting for inflation were Rs.368 (US \$9) and Rs.559 (US \$14) per person per month respectively for rural and urban areas. This translates to US \$ 110-167 per year per person per year.

Abbreviations:

ANM	Auxiliary Nurse Midwife
CBHI	Central Bureau of Health Intelligence
CGHS	Central Government Health Scheme
CHC	Community Health Center
DFID	Department for International Development
ESIS	Employees State Insurance Scheme
Danida	Danish International Development Assistance
Dept. PH & FW	Department of Public Health and Family Welfare
FOGSI	Federation of Obstetrics and Gynecologists of India
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
IMR	Infant Mortality Rate
JSR	Jan Swasth Rakshak (equivalent to a barefoot doctor)
ISMH	Indian Systems of Medicine and Homeopathy
LMIC	Low to Middle Income Countries
MIS	Management Information System
MP	Madhya Pradesh
NCHSE	National Center for Human Settlements and Environment
NGO	Nongovernmental Organization
PHC	Primary Health Centre
PPP	Public Private Partnership
SC	Scheduled Caste
SRS	Sample Registration System
ST	Scheduled Tribe
TB	Tuberculosis
TBA	Traditional Birth Attendant
VIF	Variance Inflation Factor
WHO	World Health Organization

Data on Madhya Pradesh (MP) and India

	MP	India
Total population (Census 2001) ¹ (in million)	60.35	1028.61
Decadal Growth (Census 2001) (%)	NA	21.54
Crude Birth Rate (SRS ² 2007)	29.1	23.5
Crude Death Rate (SRS 2007)	8.9	7.5
Total Fertility Rate (SRS 2006)	3.6	2.9
Infant Mortality Rate (SRS 2007)	74	57
Maternal Mortality Ratio (SRS 2001 - 2003)	379	301
Sex Ratio (Census 2001)	919	933
Population below Poverty line (%) (1999-2000)	37.43	26.10
Schedule Caste population (in million) (Census 2001)	9.16	166.64
Schedule Tribe population (in million) (Census 2001)	12.23	84.33
Female Literacy Rate (Census 2001) (%)	50.3	53.7

¹ Census of India, 2001

² (Registrar General India, 2006) Sample Registration System

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Preface

The work in this thesis evolved as part of my professional work in Madhya Pradesh, India between 2001 and 2005 (my first experience with public health after being a medical resident). At the time I worked closely with the Ministry of Health in Madhya Pradesh as part of the Danish International Development Assistance (Danida) supported Madhya Pradesh Basic Health Services Project.

This project was designed as a sector support program (health sector) in the province. The seeds of this thesis work were sown in early 2003, when a number of threads converged at the Department of Public Health and Family Welfare:

- (i) The Department was in the process of formulating its health policy
- (ii) Challenges in the existing health management information system (MIS) and the need to address these were recognized (with the second phase of the World Bank sponsored Reproductive and Child Health program on the anvil)
- (iii) There was an increasing awareness among policy makers of the large private sector and the need to work with the sector (prompted in part by the large donor programs in the province at that time including the Danida project and the UK Department for International Development's (DFID) Medium Term Health Sector Strategy).
- (iv) The Danida project in the province also had a new chief technical advisor at that time with a mandate to focus on operations research in the province.

Given these priorities, the Department of Public Health and Family Welfare, in collaboration with the Madhya Pradesh Basic Health Services Project, decided to plan and carry out a state wide survey of all health care providers in the province. The Danida program was given the responsibility of implementing this survey project. Within the Danida program, I worked most closely with the survey and was engaged in all stages of the project. This involved initial discussions with officials at the Department of Public Health and Family Welfare, planning the project, working with grass root nongovernmental organizations (NGO) in the district, developing tools, pilot testing, training and instituting monitoring and supervisory mechanisms. Then I worked with a computerized mapping exercise (to map providers onto an information system) with the Bhopal (Madhya Pradesh) based National Center for Human Settlements and Environment (NCHSE). The Joint Director, MIS, Government of Madhya Pradesh was closely involved in this undertaking.

As part of my work in the program, I also worked with the evolving of state health policy, interfacing between the Department of Public Health and Family Welfare and other stakeholders. (These included donor organizations, other state departments, NGOs, multilateral agencies). The interview study in this thesis stemmed from interviews that were carried out in connection with the development of health policy. The interviews focused on a number of other areas that were contextually important from a policy perspective. Other areas explored included constraints in the public health sector, financing health care (user fees and insurance), inter-departmental coordination within the government, influences over the direction of health policy thus far, and the role of donor assistance. However in this thesis, the focus is on how policy makers perceive the private health sector.

The Danida project was a bilateral assistance program between the governments of Denmark and India that was exclusively focused on the public health sector. However, as someone who belonged to the local context and through my experience with other people living in the province (including those in the rural areas of the province), it seemed very evident that the private health sector was more significant as a source of health care in the lives of most ordinary people. This applied to both the urban middle class and those living in the rural interiors of the province (even if the type of private health care provision was different).

I am grateful for the richness and depth of experience I have had in Madhya Pradesh, for the challenges and opportunities it presented for me to learn, for the shifts in perspective I gained in those years both personally and professionally.

INTRODUCTION

India has one of the most highly privatized health care systems in the world in terms of finance and delivery (World Health Organization, 2007). Recent national health accounts show that 77.4% of all health care expenses are incurred in the private health sector (Ministry of Health and Family Welfare, 2005), mostly out-of-pocket. The extremely heterogeneous private health sector has grown significantly over the past decades and now provides three quarters of all outpatient care and one third of inpatient care across all socioeconomic groups (D. Peters, Sharma, Ramana, Pritchett, & Wagstaff, 2002).

During the last decade, a number of reports emerged on the dominance of the private health sector. Nationally, it has been estimated that about 80% of outpatient visits occur in the private sector (National Sample Survey Organization, 2006), that 93% of all hospitals and 64% of the hospital beds were in the private sector (S Nandraj, Muraleedharan, Baru, Qadeer, & Priya, 2001), along with 80-85% of allopathic doctors (Duggal, 2000) and a similar proportion of practitioners of Indian systems of medicine (S. Nandraj, Khot, Menon, & Brugha, 2001; S Nandraj et al., 2001). The majority of hospital admissions were also in the private sector, with a higher utilization by better off groups than poorer ones, in both public and private hospitals.

At present, the private sector plays an important role in India's health care delivery system. Through a network of facilities this sector caters to the needs of both urban and rural populations and has expanded significantly in recent times to meet increasing demands. Several reasons have been proposed for this. The budgetary support of government has not kept pace with population health care needs. Private sector growth has also been triggered by factors such as a new economic policy regime in India, the rapid influx of medical technology, and a rising middle class. It is well recognized that market failure will have significant implications for the cost, quality and accessibility of health care. Despite the undesirable consequences of private sector growth (on the above aspects), there has been a virtual absence of mechanisms, within and outside government to influence the growth of the sector in a desirable direction. The state and professional agencies have an important role in instituting processes and mechanisms to ensure the provision of safe and appropriate health services from this sector.

One of the important grounds on which the private sector could be engaged is that of an efficient, equitable and quality conscious sector. The government has an important role in making that happen, by such means as regulation to ensure basic minimum standards of quality of care, setting up and demanding accountability from professional bodies, ensuring health care costs are under control and system efficiency is maintained; by facilitating the development of insurance mechanisms to protect the population from high financial burdens and to improve access.

Significantly despite its growth, basic information on the private health sector is limited, making the job of regulating their practice incredibly difficult. Estimating the number of health providers who are not formally trained is particularly problematic, since they are not registered within any formal framework.

The papers in this thesis sought to study the size and composition of the private health sector in one province of India. This thesis looks at the health sector from a 'supply side' in that the utilization of services (demand side) has not been considered here.

There is need in this setting, for a strong public sector to engage with the private health sector, as part of the state's responsibility to ensuring health care for its citizens, premised on the need to ensure equity in access to quality health care for all population sub groups. Though this thesis does not go as far as exploring the specific nature of these partnerships, it lays important ground work towards that end.

BACKGROUND

The health system in India

Historical perspective

India in pre-independence times, had a pluralistic system of health care provision (Berman, 1998) wherein providers were remunerated by clients for their services. Although there are few data upon which to base a confident analysis, it is likely that nongovernment health care provision, even of allopathic services, is not a new phenomenon. For example, the 1881 census reported more than 84000 male medical practitioners of whom 72% were not qualified in Western medicine. The Bhore committee report (Bhore, Amesur, & Banerjee, 1946) noted that in the early 1940s only 27% of the “registered medical practitioners” enumerated were in government employ, with the rest in private practice (Gill, 1987).

Newly independent India was influenced by the post war ferment of ideas on health care from Europe and adopted a system not dissimilar to the British National Health Service (health care provided and financed by the state). The colonial government initially developed medical services for the ex-patriate population and the military, and then extended allopathic medicine beyond the major cities in the early decades of the 20th century. This trend was accelerated after independence and in the 1950s and 1960s. Studies in the 1960s however, already report widespread use of nongovernment allopathic providers in rural and urban areas, most of whom were fee-for-service (Gill, 1987). While the government was probably initially an almost exclusive provider of hospital services (although it is now becoming less dominant), the trend for allopathic treatment of illness is less clear. It is plausible that government has never been the major source of care for ambulatory illness care for much of India, although it has been the major provider of preventive services and population-based public health interventions.

The Bhore committee report (Bhore et al., 1946) laid out the first formal health care policy adopted by India’s newly independent government. Reflecting the influence of the proposed Beveridge reforms in the United Kingdom, (and like other former colonies and countries emerging from the war), it envisaged an Indian National Health Service and proposed the construction of a massive publicly managed health infrastructure, including a 75 bed hospital for every 10-20000 population, and an average of five second-level referral hospitals of 650 beds each along with one 2500-bed tertiary hospital in each district. This is a level of hospital bed provision (6 per 1000 population) which is about seven times the current national average, including both public and private sectors. The report also proposed major national disease control programs. Its recommendations were adopted by the Government of India, but never fully implemented due to lack of financing (Jeffery, 1988). Government policy directives eventually stopped referring to the Bhore committee report as a model. But its approach, an exclusive focus on public investment in a state-run health care system, clearly set the tone for the subsequent decades of public sector health care policy.

The private health sector, which at the time of independence was limited to a few mission hospitals and a number of practitioners of Indian systems of medicine, was largely ignored. The government created a tiered public health service, with an extensive network of rural health facilities, to provide preventive and curative services. Little

attention was paid to the role of the private health sector and how it could be directed through oversight.

The public health system

Government health services are intended to be available to all through a publicly financed and managed health service infrastructure, free of cost.

Rural health services

India's primary health care system is based on the primary health center (PHC) and its attached sub centers. PHCs are operated by a physician and other health workers (including the auxiliary nurse midwife [ANM]).

Facilities are organized in a hierarchy for management and referral purposes. Each sub-center (manned by health workers) is intended to provide health care to every 5000 population in general and for every 3000 in hilly, tribal and backward areas; each PHC for every 30,000 population in the plain areas and for every 20,000 population in hilly, tribal and backward areas; and a Community Health Center (CHC) for every 80,000 to 120,000 of population so as to serve as a referral institution for four PHCs, having a minimum of 30 beds and four specialists. CHCs mainly provide specialized curative services in gynecology, pediatrics, surgery and medicine. PHCs provide all ambulatory illness treatment services, routine personal preventive care such as ante-natal visits, well baby checkups, immunization; maternity care on an out-patient basis; and public health and vector control measures. This includes personal curative services but doesn't include treatment as an inpatient in a hospital.

In spite of these facilities, several gaps remain, which are discussed below.

Urban health services

More than one quarter of the population now lives in urban areas. Large-scale migration from rural areas in the past decade has led to the growth of slums in these areas. There has been no concerted effort by the government to provide services to this section of the population. Most large urban areas have large-scale secondary and tertiary facilities provided by the government. Out patient services at government dispensaries and clinics are available in some cities. Hospital facilities, which should be available only for referred inpatient care, are significantly used for outpatient care also. People have to wait in long queues or depend on out-of-pocket payment for private care.

Social health insurance schemes

Two social insurance schemes where central and state governments make contributions are the Central Government Health Scheme (CGHS) and Employees State Insurance Scheme (ESIS). Whereas the government wholly provides the services for CGHS employees, the ESIS is a public sector corporation, which has its own clinics and dispensaries.

Provision in state owned enterprises

Many state-owned enterprises like Indian railways, mines, telecommunications, posts and defense offer in-house hospital facilities to their employees. Generally, expenses for running in-house hospitals are met by these enterprises from their own budgets; however, some financing also comes from employees and government.

The Armed Forces Medical Services (AFMS) are responsible for providing comprehensive health care to serving personnel, their families and dependants numbering approximately 5.3 million.

Indian railways have a network of 122 railway hospitals and 670 health units, which render medical services to 1.6 million employees and their families.

Overall, <2% of the population are covered by any formal insurance scheme in the public or private sector.

Weakness in the public health system

Despite this extensive infrastructure, the performance of the public health sector has been poor. Less than half the children are fully immunized and just over one-third of deliveries are institutional, (International Institute for Population Sciences & Macro International, 2007) which, in turn, contributes to high levels of disease and maternal and infant mortality. There is large variation among the states. Unfortunately, the most populous states (of which MP is one) happen to be the poorest and are unable to reach large sections of the target population. While the original aim of the public health sector has been to provide fully state financed health care, the public sector's ability at reaching the poor has come into question. A recent assessment (Mahal et al., 2001) of the public subsidy to the health sector in India that has shown that the poorest quintile of the population capture only 10 % of the subsidy, less than a third of that captured by the richest quintile.

While many reasons for poor public performance exist, almost all stem from a weak stewardship of the sector. Three basic issues that were highlighted in a world bank policy note (Radwan, 2005) are presented here:

1. A bureaucratic approach to health care provision
2. Lack of accountability and responsiveness to the general public
3. Incongruence between available funding and commitments

Bureaucratic Approach

- A rigid PHC structure. The PHC structure is the same for every area and, therefore, unable to respond effectively to local realities and needs. PHCs exhibit very little differentiation despite serving markedly different populations and circumstances. Moreover, political interference in the location of health facilities often results in an irrational distribution of PHCs and their sub centers.
- A focus on inputs rather than outputs. Government health departments are focused on implementing government norms, paying salaries, and ensuring that minimum facilities are available rather than on measuring health system performance or health outcomes. This focus results in a supply-driven approach.
- Lack of public health management capacity. In general, the public health care system is managed and overseen by district health officers. Although they are qualified doctors, they have little or no training in public health management and are transferred frequently. Moreover, even if they had the training, they do not have the flexibility to reallocate financial capital and human resources to achieve better outcomes.
- Vacancies in PHC posts for long periods. It is not clear whether the high percentage of vacancies seen in many settings is a deliberate strategy to reduce the budgetary burden or simply a result of administrative inefficiencies. Moreover, when posts are filled, doctors are often absent.

Lack of Accountability

The lack of accountability and responsiveness stems from the lack of a formal feedback mechanism. According to Transparency International, the health sector is viewed by the

public as second only to the police as the most corrupt sector in the country (Thampi, 2002). In general, the lack of accountability results in the following service deficiencies:

- Absentee doctors and paramedical staff: A study of primary health workers in Rajasthan found absenteeism rates in clinics averaging from 35-55% of the time, while nurses assigned to outreach in villages were present in the villages only 12% of the time (Banerjee, Deaton, & Duflo, 2004). The unpredictable pattern of absenteeism further added to the inability of patients to use services. In urban setting, public providers may not be at work because they are practicing in their private clinics (Chawla, 2000).
- Inconvenient opening times.
- Informal payments: Informal payments also occur frequently to obtain admission to a hospital, to obtain a bed, or to receive subsidized drugs: one survey found that over one quarter of patients made informal payments (Thampi, 2002). Other common concerns that are difficult to measure include leakages of drugs and supplies to the private sector and kickbacks from drug manufacturers and distributors. Studies in Andhra Pradesh and Uttar Pradesh showed that informal private providers were being reached by drug companies (over 80% received free samples in Andhra Pradesh and over 55% in Uttar Pradesh), and that many were receiving rewards for providing them to patients (Chakraborty, 2003; Mahapatra, 2003).
- Little or no community participation.

Incongruent Budgets and Commitments

The lack of resources, which in some states is acute, is certainly a contributing factor to the poor performance of the primary health care system. In poor states, spending levels are extremely low, yet expectations for coverage remain high. This incongruence is a key factor in explaining poor use of public facilities.

The incongruence between resources and targets results in the following problem areas:

- Lack of medicines.
- Limited doctor salaries
- Poor condition of PHC infrastructure.

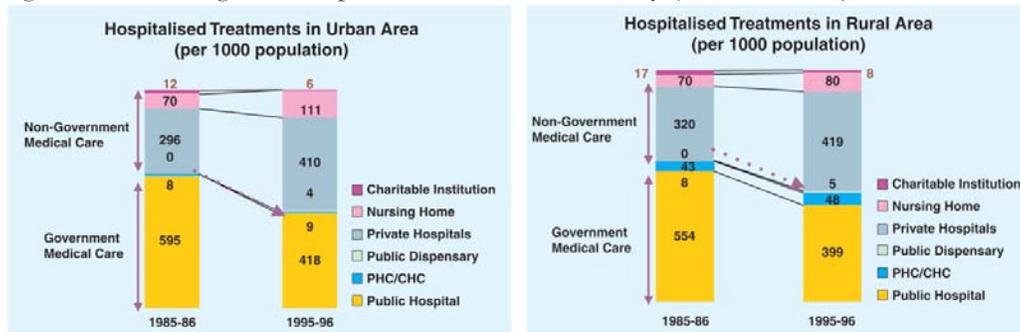
Although India has one of the largest public health systems in the world in terms of its absolute size, its market share is relatively small. Most transactions in health care in India occur in the private sector (see below), where government pays little attention.

Growth and dominance of the Private sector

At Independence in 1947, less than 8% of all medical institutions in the country were maintained by wholly private agencies (Bhore et al., 1946). By the early 1990s, this figure had reached close to 60 % (Radwan, 2005), and there are indications that it increased even further during the past decade. In large part, the private sector appears to have emerged in response to the dismal situation of the public health sector. The decade to 1996 witnessed a steep decline in the market share of public health services (see fig. 1 below). The proportion of patients seeking ambulatory care in the public sector fell from 32% to 26% in rural areas and from 30% to 17% in urban areas.

Similarly, by 1996 the private sector accounted for 54% of rural hospitalization and 70% of urban hospitalization (National Sample Survey Organisation, 1998). Strong evidence exists that such official statistics grossly underestimate the size of the private sector. It is

Fig 1: the dwindling share of public health sector delivery (Radwan, 2005)



estimated that 93% of all hospitals and 64% of the hospital beds are in the private sector (S Nandraj et al., 2001), along with 85% of allopathic doctors (Duggal, 2000) and a similar proportion of practitioners of Indian systems of medicine (S. Nandraj et al., 2001; S Nandraj et al., 2001). Estimating the number of health providers who are not formally trained is particularly problematic, since they are not registered and many work part-time. Conservative estimates put the number of non-qualified rural medical practitioners at 1.25 million in the mid-1990s, more than double the number of formally trained providers (Rohde & Viswanathan, 1995). Whereas the majority of qualified solo practitioners practice in urban areas, untrained practitioners, faith healers, traditional birth attendants, priests and local medicine women and men largely cater the poor in rural areas (S. Nandraj et al., 2001; S Nandraj et al., 2001).

It is difficult to trace specific elements or ideologies that might have sparked off privatization in the health care sector (there is little literature documenting the characteristics of private care in India over the last century). It has been an expanding sector for decades; the expansion of the private health sector (unlike other sectors) has not been specifically linked with the opening of the country's economy in 1990. There is no evidence to suggest that the privatization of health care in the country at anytime has been an active process, based on a belief in efficiency induced by markets and private ownership, or on civil rights for private ownership. This remarkable growth in private sector health services seems to have occurred largely by accident as the private sector has stepped in to meet needs that the public sector could not address. While there have been a number of sample studies to estimate the size and composition of the private sector, there have not been any formal attempts to empirically to study these on a large scale.

Health policy and the role of the province

India has a federal form of government with a central Government of India in New Delhi, while each of the 28 provinces has their own elected provincial (state) governments. There is one constitution, which is the fundamental law of the country. This constitution contains the lists of items over which Central government and the State governments have jurisdiction. There are three lists – a Union list having the items on which the Central government has the power to legislate (e.g. defense), a State List having the items over which the State Legislatures have power to legislate and a Concurrent list having items over which both Central and State legislatures have concurrent jurisdiction.

Health is a state subject in India and most of the financial outlay (up to 85% of government spending) is expected to be made by the state governments. Appointing personnel, filling vacancies, ensuring district-level coordination, and enabling community and panchayat institutions (local village self governments) to have a role in planning and monitoring services are all functions that require the active participation of the state government. However there are a large number of centrally funded vertical programs delivered through the PHC system in the provinces. Population stabilization is on the concurrent list, with large central funding. Also, given the extremely difficult fiscal position of many state governments, the Central government plays some role in augmenting public health investments in the provinces.

The country has had its own national health policy, the most recent being the National Health policy, 2002 (Government of India, 2002). Provinces are expected to develop their own provincial health policies, taking into consideration the context of the province, but largely in line with the National Health Policy. While some provinces do have their own health policy, most provinces do not. There has been some critique that there has been too much administrative function from the Central government, allowing little initiative from the provinces. This, critics say has resulted in a poor or sense of ownership and an unwillingness to look for structural change and deliver better health care in the provinces.

Regulation of the health sector

The 2002 National Health Policy (Government of India, 2002) made decreasing inequities in health one of its principal objectives, and called for greater investment in primary health care, “implementation of statutory regulation” and “monitoring of minimum standards” in the private sector.

Questions about the quality, costs and accessibility of care provided in the private sector are central issues for regulation, and have been highlighted in a number of recent studies in India (S Nandraj et al., 2001; D. Peters et al., 2002). Some of the main causes of concerns about the private sector include the potential for unnecessary services, high prices, or skimping on quality. Studies have shown excessive caesarean section rates (Muraleedharan, 2000; Pai, Sundaram, Radhakrishnan, Thomas, & Muliyl, 1999), unnecessary hysterectomies (Ranson & John, 2002), inappropriate drug treatments (Yesudian, 1994), and unsafe abortions (Varkey, Balakrishna, Prasad, Abraham, & Joseph, 2000). However, public policy has largely left the private sector to its own devices, and information on the sector has remained sketchy. Basic information on the number of private facilities and practitioners is limited, making the job of regulating their practice difficult (D. H. Peters & Muraleedharan, 2008).

There is an asymmetry in the relationship between the provider (the agent) and the patient, and it is usually not possible to demonstrate opportunistic behavior of agents, even by independent regulatory bodies. The inability of market forces to function efficiently in these conditions is exacerbated by the fact that out-of-pocket payment is the dominant mode of health financing in India, which increases the opportunity for agents (providers) to increase the volume and intensity of services to enhance their incomes (Mills et al., 2001). While this argument makes regulation necessary, the same argument also points out that regulation of prices, quality and quantity of health services is not easily achievable. This may be because this type of regulation requires a high level of research capacity and is heavily data driven, which can be a drain on regulatory capability

(Bennett & Muraleedharan, 2000). The situation is made worse by providers' failure to disclose information.

India has a comprehensive set of legal instruments for health care, involving numerous laws dating back to 1855, and various forums where cases are heard, interpreted and resolved. Currently laws include the Indian Medical Council Act, the Indian Penal Code, the Indian Contracts Act, Law of Torts, and more recently the Consumer Protection Act (Bhat, 1996; D. H. Peters & Muraleedharan, 2008).

Professional Self regulation

In many countries, regulation over health professions is delegated to professional organizations, under the premise that these organizations have an interest in maintaining standards in order to enhance the reputation and marketability of their profession. In India, however, much of the professional regulatory functions have been delegated to quasi-governmental agencies such as the provincial Medical Councils and councils for doctors of Indian systems of medicine, dentists, nurses, physiotherapists and other health professionals. Their roles are largely limited to inspecting colleges and assuring the graduation requirements of their professions, and they do not assure standards of care beyond graduation.

The professional associations organized by health providers may include both private and public sector providers, but tend to act more as self-interested trade guilds rather than as credible organizations for self-regulation (D. H. Peters & Muraleedharan, 2008).

On the positive side, there are a few larger hospitals (mostly in the private sector) in India that are pursuing accreditation through international organizations, such as through registration with the International Standards Organization (ISO) or the Joint Commission on Accreditation of Health Care Organizations in the United States, but the practice has not yet become widespread. These approaches may be used as a way to market their services to international consumers and insurers as part of a growing trend to attract "medical tourists" to India, as well as to distinguish their brand names in the domestic market.

Financing of health care

The National Health Accounts for India, 2001-02 (Ministry of Health and Family Welfare, 2005) showed that only a fifth of total health expenditure was state funded. 77.4% of total health expenditure in the country came from private sources (table 1).

Table 1: Total Health Expenditure in India, 2001-02 (Ministry of Health and Family Welfare, 2005)

<i>Expenditure</i>	<i>Per capita (INR)</i>	<i>% of total health expenditure</i>	<i>Total health expenditure as % GDP</i>
Public expenditure	207	20.3	0.94
Private expenditure	790	77.4	3.58
External Support	24	2.3	0.11
Total Health expenditure	1021	100	4.63

INR=Indian rupee (1 USD= 43 INR)

Private households contributed 93% of all private health expenditure. Out-of-pocket expenses for medical care accounted for 98.4% private household health expenditure (a

minimal 1.5% came from insurance premiums). Nearly half this expenditure is paid out for primary curative care.

Recent studies on India's health sector have described in detail the wide variation in the delivery and financing of health services across India (Ministry of Health & Family Welfare, 2005; D. Peters et al., 2002; D. H. Peters, 2002; D. H. Peters, Rao, & Fryatt, 2003). Overall, India's large public health services delivery infrastructure is characterized by under-funding and low performance. The country has an even larger but fractured private sector, and both public and private services favor the better off over the poor. Nationally, it has been estimated that about 80% of outpatient visits occur in the private sector (National Sample Survey Organization, 2006). The majority of hospital admissions are also in the private sector, with much higher utilization by better off groups in both public and private hospitals. Births delivered in hospitals show a similar pattern, with the wealthier groups having higher rates of institutional delivery in both public and private facilities (D. H. Peters, 2002). On the other hand, preventive care is largely provided through the public sector. About 90% of immunizations and 60% of antenatal care is publicly provided, with the distribution of both services disproportionately favoring the poor (D. Peters et al., 2002). Although there is no regular tracking, the most comprehensive analysis of utilization and spending of public resources in health demonstrated that nationally, public spending is about three times greater for the wealthiest quintile of Indians than the poorest quintile, with large differences in disparities between Indian states (Mahal et al., 2001).

Oversight of financing for health services raises additional concerns in India. Public spending on health has been relatively low, leveling off near 1% of GDP for many years, whereas private out-of-pocket spending by individuals accounts for about 80% of health financing. This places many people at risk of financial catastrophe in the case of serious illness. Analysis of the National Statistical Survey Organization data shows that the cost of a hospitalization is extremely high compared to one's total annual expenditures, averaging 58% (D. Peters et al., 2002). Nationally, about 40% of all people borrow money or sell assets to pay for hospitalization, and nearly 25% of all people hospitalized fell below the poverty line because of medical expenses (D. Peters et al., 2002). These quantitative estimates are reinforced by qualitative evidence (Narayan, Chambers, Sha, & Petesch, 2000). They found that households with sick and elderly people are invariably on the brink of poverty on account of heavy expenditures for medical treatment. Lost wages and treatment expenses mean that poor groups are hit doubly by ill health. After illiteracy and unemployment, spending on health care was the greatest precursor to poverty among poor households and the greatest impediment to continued household solvency.

The evidence suggests that basic elements of the structure and performance of the health systems in India are not being measured, effectively limiting how the government is able to oversee the health sector. The result is that most health providers are not accountable to the state or to the public at large. Looking exclusively at public sector services gives insight on only a small part of the health sector. What is known suggests that the poor in India have worse health conditions, but they are becoming more impoverished because of ill health, are getting less of the public resources for health, and are largely dependent on a vast private sector for their curative care.

Partnerships between the private and public sectors

Some of the health sector reforms strategies proposed by the World Bank in its 1993 report (World Bank, 1993), 'Investing in health' included a) alternative financing (user-fees, health insurance, community financing); b) decentralized institutional management (autonomous hospitals, local government supervision and management); c) public sector reforms (civil service reforms, capacity building); and d) collaboration with the private sector (public-private partnerships (PPP), contracting, joint ventures).

Partnership with private sector emerged as a new avenue of reforms, in part resulting from resource constraints for the public sector by various governments across the world (Mitchell-Weaver & Manning, 1992). While reviewing the health sector in India, the World Bank (World Bank, 1993) and the 2005 National commission on macroeconomics in health (Ministry of Health & Family Welfare, 2005) strongly advocated harnessing the private sector's energy and countering its failures, and making both public and private sectors more accountable. Reaching out to the private sector and fostering a collaborative relationship for providing services to the people is particularly critical in the Indian context. Due to the deficiencies in the public sector health systems, the poor in India are forced to seek services from the private sector, often borrowing to pay for them (as most payments are out-of-pocket as described in the section above). There have been some scattered efforts towards PPPs in India with varying levels of success.

In the industrial state of Gujarat, the provincial government in an attempt to decrease maternal mortality, collaborated with the Indian Institute of Management (a university), the Society for Education Welfare and Action—Rural (a well-known non-governmental organization [NGO]) and local obstetric societies, and developed a scheme to provide free birth care to poor families through contracts with private obstetricians practicing in rural areas (Mavalankar, Singh, Bhat, Desai, & Patel, 2008). This innovative public-private partnership was called the Chiranjeevi Yojana, which means a scheme to provide long life (to mothers). The pilot study started in December, 2005, in five backward districts. The health department contracted 170 of the 200 private obstetricians in these districts to provide skilled birth-attendance, including required emergency services to poor women. The government paid the obstetricians Rs1795 (about US\$45) per delivery irrespective of the type of delivery. This per-head mechanism ensured that there was no financial incentive for unnecessary caesarean sections. On the basis of a good performance, the government decided to scale up this scheme to all 25 districts of the State in January, 2007. More than 840 private obstetricians are now enrolled under this scheme. As of November, 2007, there have been 131 000 deliveries, with a mean rate of caesarean section of 6%. About 40% of eligible poor pregnant women have benefited from the scheme in 2 years. Available data show that the proportion of deliveries in institutions has risen to 76% in November, 2007, from 54% in 2005.

In January 2004, the government of India launched the 'Vande mataram' project (Government of India, 2004) in collaboration with the federation of obstetricians and gynecologists of India (FOGSI - most of whom are private providers), on a national level, with a view to obviate the problem of lack of gynecologists. This scheme envisaged provision of free out patient services including ante natal care to all pregnant women and family planning counseling to new mothers regularly by the public and private facilities on a fixed date of each month. It would improve the access of pregnant women to ante natal care and thus, reduce maternal and neonatal deaths significantly.

Although the project is still ongoing, no evaluation of its impact has been performed. Critics argue that governmental interest has waned in the scheme.

Adoption of government primary health centers (Government of India & Central Bureau of Health Intelligence) has been attempted with some success in some provinces (Karuna trust in Karnataka) and less success in others (Madhya Pradesh). The Karnataka government has also handed over the management of a tertiary state owned 600 bedded hospital to the private sector.

With regard to national disease control programs, there have been a number of different, small public private initiatives. Private collaboration for TB control has been recognized as important at a global level, and collaborations for detection, diagnosis and treatment follow up have evolved. In India, most of these have been on a small scale between institutions, the largest involving a district (Balasubramanian et al., 2006; Ferroussier et al., 2007; Sehgal et al., 2007). Some collaboration has also occurred in the leprosy control program (Dhillon, 2004) with mission organizations and now increasingly with HIV under the stewardship of the National Aids Control Organization.

The new approaches involving partnerships, though small and uncoordinated, break from the traditional views of government organized health systems (Bloom & Standing, 2008). The new mechanisms to an extent promote trust between providers and patients, reduce information asymmetries, and reflect the rising role of consumers in the market. Governments in India are beginning to respond to some of these changes, particularly by recognizing the rights of consumers, but they have largely stayed within their "comfort zone" of traditional bureaucratic approaches (D. H. Peters & Muraleedharan, 2008).

Human resources for health

The world health report, 2006 (World Health Organization, 2006) was specifically dedicated to the issue of human resources for health. There is a growing need for high quality information on human resources in health systems to inform decision making for policies and programmes at national and international levels. The World Health Organization (WHO) Department of Human Resources for Health has been collecting and compiling cross-nationally comparable data on health workers in all WHO Member States and in 2008 presented its Global Atlas of the health workforce (World Health Organization, 2008). Counting health workers poses challenges, including how to define them. The World Health Report 2006 defines health workers as "all people engaged in actions whose primary intent is to enhance health." Various permutations and combinations of what constitutes the health workforce potentially exist depending of each country's situation and the means of measurement.

At the heart of every health system, the workforce is central to advancing health. There is ample evidence that worker numbers and quality are positively associated with immunization coverage, outreach of primary care, and infant, child and maternal survival. As per this report, India has been classified as a country with a critical shortage of health workers (doctors, nurses and midwives). The average estimate of physician density for India is 0.6/1000 persons, however as the report states, this is a broad average. In the thesis studies of one province itself, physician density has varied widely with densities as high as Singapore and S. Korea in some areas and as low as in Swaziland, Zimbabwe and Zambia in others.

The Public Sector: Since the launch of the Community Development Programme in 1951, India has gradually developed a vast public health infrastructure, which as of 2006 included 144,988 sub-centers, 22,669 PHCs and 3,910 CHCs, providing services to 742.49 million rural people (72.2% of the country's population). Besides, there are 9,976 hospitals in the public sector (two third of which are rural).

The types of human resources for health managing the public health system in India has been largely influenced by the recommendations of the Bhore Committee. In the year 2006, India had 22,273 doctors staffing public sector primary health centers, 215,206 health workers (two thirds of whom were women) and 3,979 specialists serving in CHCs (Central Bureau of Health Intelligence, 2007). A large training infrastructure exists to train this manpower.

Private sector: Though the private sector plays a big role in the delivery of health care, no exact figures for the magnitude and characteristics of this sector are available except on a sample basis. Enumerating private providers has been difficult because of their diversity, besides dual practice in the public and private sectors. It is estimated that 85% of allopathic doctors (Duggal, 2000) and a similar proportion of practitioners of Indian systems of medicine (S. Nandraj et al., 2001; S Nandraj et al., 2001) are employed in the private sector. Estimating the number of health providers who are not formally trained is particularly problematic, since they are not registered and many work part-time. Conservative estimates put the number of non-qualified rural medical practitioners at 1.25 million in the mid-1990s (Rohde & Viswanathan, 1995).

Health Information and its management

An effective health MIS is an important instrument to plan and monitor health interventions and facilitate overall surveillance of the health situation in a population. Despite the availability of an abundance of information, in many low-income settings the health sector often lacks the capacity to find, communicate, or use it effectively (World Health Organization, 1993). In India, there are several reasons for this. Routine health information systems are centrally planned and managed. There is little understanding or use of the data at the levels where it is collected, often in response to imposed reporting requirements. Field functionaries send in information with no feedback. Information is based on manual reports that flow unidirectionally up consecutive tiers of the public health system hierarchy. Various sub-structures within the health sector have developed their own elaborate data collection systems. Effective coordination is poor resulting in duplication and gaps in data collection. The data are presented as complex spreadsheets or numerical tables that are not easily understood. This restricts the optimal use of data for planning and monitoring.

At the national level: The Central Bureau of Health Intelligence (CBHI) is the intelligence wing of the Directorate General of Health Services in New Delhi. It deals with the collection, compilation, analysis and dissemination of health information in the country covering various aspects including the health status, morbidity indicators, health resources, utilization of health facilities etc. In addition there is a Statistics Division at the Ministry of Health which focuses on indicators related to reproductive and child health.

To obtain estimates of vital statistics, the Registrar General and Census Commissioner, India conducts an annual Sample Registration System (SRS). SRS is a sample based demographic survey conducted in the country to provide reliable annual estimates of birth rate, death rate and other fertility and mortality indicators at the national and sub-

national levels (as census operations in India occur only once every ten years). The SRS field investigation consists of continuous enumeration of births and deaths by a resident part time enumerator, generally a teacher followed by an independent survey every six months by an official. The data obtained through these operations are matched. The unmatched and partially matched events are verified in the field.

The sample unit in rural areas is a village (or a segment of it if the village has a population of 1500 or more). In urban areas the sample unit is a census enumeration block with a population ranging from 750 to 1000. As of 2004, SRS annually covers 7597 sample units (4433 rural and 3164 urban) in all the states and union territories of India (1.1 million households and a population of about 6 million).

At the provincial level: Vital statistics for the province are generated through the SRS. However for health information (specifically related to health programs or services), data flows from the lowest level (the rural sub health center) up the tiers of the public health system, being progressively summated at each level. Data from the health workers' registers at the sub centers is sent up to the primary health centers (where it is compiled by a statistical assistant) and then sent on to the district level. District summaries are sent to the provincial headquarters.

However as stated above, the MIS responds to imposed requirements from the Central government, and there is little feedback or use made of the data at the local level. In addition the existence of vertical program results in fragmented, compartmentalized data collection with frequent duplication of efforts.

In addition, data from the huge private sector is not routinely collected as part of provincial or national health information systems in the country.

CONCEPTUAL FRAMEWORK -SOCIAL EPIDEMIOLOGY

This thesis lies at the interface of epidemiology and health systems research. While the subject of the thesis (public and private health care provision) deals with health systems, epidemiology itself is broadening from a science that identifies risk factors for disease to one that analyses the systems that generate disease in populations (Koopman, 1996). I have been most inspired by the framework of social epidemiology, within which I see this work situated. In particular, this work relates to the ‘political economy of health’, a current theoretical trend within social epidemiology. This framework broadly studies the economic and political determinants of health (and disease), including the structural barriers to people living healthy lives. Implications for change flow from this perspective – one of the main ones being that strategies for improving population health require a vision of social justice, backed up by the recognition of the need for change in social and economic policies. This need for change in existing policies in order to promote equity of access to health care is a recurring thread in the papers constituting this thesis. It is hoped that these papers will inform policy, with the ultimate goal of securing social equity in health in the setting.

Social epidemiology

Traditionally, epidemiologists are trained to count the occurrence of disease in populations, though as mentioned above, the scope of epidemiology is widening to move beyond risk and disease. (In this thesis, the counts and distribution of health care providers are studied and the social determinants for this distribution are then analysed). Where Social epidemiology departs from conventional epidemiology is at the level of causal thinking. Instead of posing the question ‘Why did this group of individuals get sick?’, the social epidemiologist is motivated by the question ‘Why is this society unhealthy?’ (Kawachi, 2002). The distinction stems from the crucial insight of the late Geoffrey Rose (Rose, 1992) that the determinants of individual health are often different from the determinants of population health.

Social epidemiology itself is a multidisciplinary endeavour. Besides insights from medicine, it incorporates theories and techniques from a wide variety of other social sciences, including economics, demography, geography, psychology, political science and anthropology. The goal of social epidemiology is to test the associations between aspects of the social environment (families, neighbourhoods, political economies) and population health. In contrast to other specialities within epidemiology that are defined by health outcomes, social epidemiology is a field that is defined by concern for describing and intervening in social conditions that either promote or harm health (Kawachi, 2002).

The historical roots of social epidemiology

The early roots of social epidemiology lie in the contextual analysis of the socioeconomic gradients in health (Krieger, 2001a). One of the earliest investigators linking population health to political economy was Louise Rene Villermé (1782-1863) (Ramsey, 1994), a French physician and supporter of the free market. His classic 1826 study of Parisian census data demonstrated for the first time that variations in annual mortality rates across neighbourhoods were patterned by poverty and wealth as opposed to the ‘natural environment’ of Hippocratic doctrine. Frederick Engels, in his work (Engels, 1845) on the impact of early industrialization on health in England cited evidence regarding higher

mortality among poor houses in poor streets compared to improved streets, thus illustrating that context matters.

Interactions between the social sciences and epidemiology (1960s-90s)

The social ferment of the 1960s particularly in the US (characterised by the wane of McCarthyism, the Vietnam protests, the civil rights movement, women's and gay liberation groups and the publication of Rachel Carson's 'Silent Spring') but also elsewhere around the globe (challenges to colonial rule, capital's power, state repression) spawned new questions. With regard to science, these were questions about the legitimacy, ideology and practice of any kind of science – whether social or natural – that disregards social and economic inequality, discounts environment, or dissociates 'facts' from 'values' (Krieger, 2000).

Initial calls for reengagement between the social sciences and epidemiology were framed in terms of linking health behaviours and health outcomes (Rosen & Wellin, 1959). Then in 1964, urging investigation of social conditions as outright determinants of health, John Cassel in a classic paper '(Cassel, 1964)', encouraged epidemiologists to draw on biological, psychological and social theories to define some of the general social processes that could be regarded as deleterious to health. In 1968, a sociologist ES Rogers, published in an article in *Science* entitled 'Public Health asks of Sociology' (Rogers, 1968) in which social scientists were asked to join hands with epidemiologists to elucidate how the 'social environment can act directly on the host as a disease producing agent.' There was a shift away from social conditions being seen as backdrops to biological and physical pathogens, to them being conceived of not only as determinants of exposure but as pathogens in their own right.

Social epidemiology in the 1970s and 80s showed persisting socioeconomic inequalities in health despite rising prosperity in the West. The Black report (Townsend, Davidson, & Whitehead, 1990) published in England forcefully highlighted these disparities.

In the mid 90's, critical attention to theoretical frameworks guiding epidemiologic investigation challenged the discipline's dominant focus on individual level biological and behavioural risk factors when analysing disease causation, and called for explicit development of epidemiologic theories of disease (or health) distribution – informed by relevant social science constructs capable of explaining current and secular trends in social inequalities in health (Krieger, 2000). One such theoretical framework, into which this thesis falls, 'The Political economy of health' is discussed below.

Social production of disease or Political economy of health

This is one of the theoretical frameworks of Social epidemiology (Krieger, 2001b). I believe this to be an appropriate framework to contain the underlying ideas within my thesis. This school of thought emerged in the politically turbulent 1960's and 70's. At this time the social ferment alluded to above in the US and elsewhere around the globe brought forth new questions. To paraphrase Aaron Antonovsky (Antonovsky, 1987), the American-Israeli medical sociologist who introduced the salutogenic framework (Lindstrom & Eriksson, 2005; Suominen & Lindstrom, 2008) to the social sciences, the study of why some people swim well and others drown when tossed in a river, needed to be displaced by studies of who is tossing whom into the current and what else might be in the water. Articles began to appear in a number of leading journals (not necessarily epidemiological) with titles such as 'A case for focussing upstream, the political economy of illness' and 'The social production of disease and illness'. The broad theoretical

frameworks were encapsulated in two books, the *Political Economy of Health*, by Lesley Doyal, (Doyal, 1979) a British health policy analyst and *Epidemiologia Economica Medicina y Poitica*, by Jamie Breilh (Breilh, 1988), an Ecuadorian epidemiologist.

Arising in part as critique of proliferating 'blame the victim life style' theories, (Crawford, 1977; Sanders, 1985) which emphasise the individual's responsibility for his/her health status, these new analyses explicitly addressed the social and political determinants of health and disease, including the structural barriers to people living healthy lives. In this manner, determinants of health are analysed in relation to who benefits from specific policies and practices and at whose cost. The underlying hypothesis is that economic and political institutions and decisions that create economic and social inequalities are fundamental causes of social inequalities in health (Link & Phelan, 1996). These analyses also address social inequalities involving race/ethnicity, gender and sexuality as they play out within and across socioeconomic position, within and across diverse societies. The call for action premised under this framework is for healthy public policies, especially redistributive policies to reduce poverty and income inequality. In a wider sense, it calls for policies promoting sustainable development, political freedom, economic and social justice (Krieger, 2001b).

The value of social epidemiology is that it can help us avoid notions that a 'technocratic quick fix' can reduce inequalities in health; it points to the structural and political determinants the underlie these (Krieger, 2001a). It is important to delineate explicitly persisting and changing structural and political determinants of these inequalities, so as to inform efforts to secure social equity in health.

AIMS AND OBJECTIVES

Point of departure for this research project

This thesis aims to study the composition and characteristics of the very diverse private health sector in one of India's largest provinces.

Many countries have a vibrant and growing private sector, which is perceived to be in response to public sector failures. There has been since the World Bank report in 1993 (World Bank, 1993), an increasing interest in the role of the private sector in health service provision in low- and middle- income countries.

India has one of the most highly privatized health care systems in the world in terms of finance and delivery (World Health Organization, 2007). The extremely heterogeneous private health sector has grown significantly over the last decades and now provides three quarters of all out patient care and a third of inpatient care (D. Peters et al., 2002), across socioeconomic groups. The private health sector in the country is complex - providers vary from being highly qualified specialists to unqualified providers, practicing different systems of medicine in diverse organizational set ups, at primary, secondary or tertiary levels.

Much literature has focused on the need to involve the increasingly ubiquitous private health sector in the overall health framework to ensure more equitable health outcomes (Floyd et al., 2006; Lyons, Classen, & Bourgeois, 2006). There has been a strong recommendation for the public sector to play the role of oversight and to engage in PPPs for health (World Health Organization, 2000). Over the years, the public sector has been presented with various policy options to encourage PPPs (Brugha & Zwi, 1998). There is now a substantial literature on ways that government can work with different groups of private health care providers, including social marketing, regulation, training, franchising, accreditation and contracting-out (Bustreo, Harding, & Axelsson, 2003; Mills, Brugha, Hanson, & McPake, 2002; Patouillard, Goodman, Hanson, & Mills, 2007; D. H. Peters, Mirchandani, & Hansen, 2004).

However setting aside the questions of efficiency and equity for the moment (these are discussed subsequently), any real engagement with the private sector requires information on who constitutes the private health sector in a setting. In India, this information is not available, as the private sector to a large extent functions outside the margins of governmental scrutiny.

This work, the first empirical mapping of the private health sector in a large low income setting, attempts to provide information on the composition and characteristics of the private health sector in one of India's largest provinces. It also qualitatively explores why there has been so little collaboration between the two sectors in the province. Further, this thesis looks at the relationship between available human resources for health and different population groups in the province.

Main Aim

The thesis aims to study private and public health care providers and their characteristics in the province of Madhya Pradesh, India. Associations between provider distribution (both sectors) and social, demographic and economic characteristics of different districts of the province are also studied. The thesis also explores perceptions that policy makers in each health sector (public or private) have towards the other sector.

Specific objectives

- To map out all health care providers in the 52117 villages and 394 towns in the province of Madhya Pradesh (Paper I)
- To establish a sampling frame of health care providers for future studies and possible partnership endeavors (Paper I, II).
- To describe distribution of all public and private providers (by type of provider, commercial orientation, organizational form, medical system etc) (Paper II, IV)
- To explore through in depth interviews the perceptions that policy makers in the public and private sector, have of each other (in terms of motivations, kind of clients served, the attitudes of each sector toward the other). (Paper III)
- To determine associations between provider densities (both sectors) and socio economic characteristics in different districts of the study province. (Paper V)

METHODS

Study setting

Basic physical and socio economic background

Madhya Pradesh (MP) in Hindi translates to *Central Province*. MP, located in the geographic centre of India is a large province (covering a land area of 304,000 sq. kilometers) with a population of 60.4 million people. Bhopal is the capital city. 73% of the population is rural. The population is a diverse mix of tribes, castes and communities. According to census of 2001, 91.1% are Hindu while others are Muslim (6.40%), Jain (0.9%), Christians (0.30%), Buddhists (0.30%), and Sikhs (0.20%). A significant proportion of the population belongs to scheduled castes and tribes (15.4% and 19.9% respectively.) The population is relatively sparsely distributed with an average pop density of 196/ sq. km. Urban population density is 1939/sq. km while rural pop density is 116 /sq. km. (Office of the Registrar General & Census Commissioner, 2001). Administratively, the province is divided into 48 districts (45 at the time of study) which are further subdivided into 313 community development blocks which consist of 52,117 villages and 394 towns.

The state has a very varying geographic terrain – characterized by the Vindhya and Satpura mountain ranges in the central and southern parts of the state, and the Narmada river (one of India's largest after the Ganges) flowing from East to West. The province is also densely forested (31% of the land area), and accounts for 13% of India's forest cover (Department of Forest Government of Madhya Pradesh).

MP comprises several linguistically and culturally distinct regions, Malwa (the plateau in the north west), Nimar in the southwest, Bundelkhand (fertile valleys) in the north, Chambal (a ravine ridden region in the north west), Baghelkhand (hilly area in the northeast), Mahakaushal (in the south east), and central hilly Vindhya region.

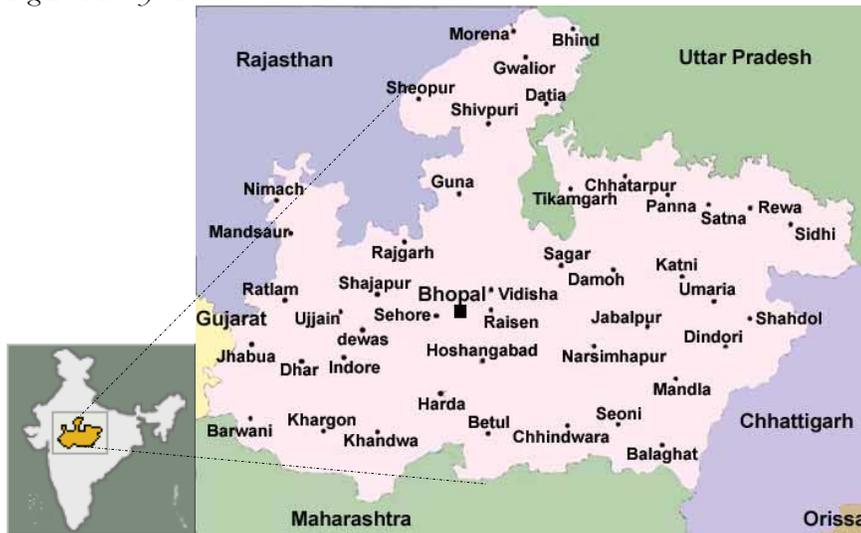
The predominant language of the region is Hindi. Urdu is spoken in pockets; in Burhanpur, the former princely state of Sironj and areas with larger Muslim populations. In addition to standard Hindi, several regional variants are spoken, which are considered by some to be dialects of Hindi, and by others to be distinct but related languages. Among these languages are Malvi in Malwa, Nimadi in Nimar, Bundeli in Bundelkhand, and Bagheli and Avadhi in Bagelkhand and the southeast. Each of these languages or dialects has dialects of its own. Other languages include Bhilodi (Bhili), Gondi, Korku, and Kalto (Nahali), all spoken by tribal groups. Due to erstwhile Maratha rule, Marathi is also spoken by a substantial number of people.

MP has a 230-seat provincial legislative assembly that convenes in the state capital, Bhopal. The state also sends 40 elected members to the Parliament of India.

Despite the focus of governmental policies for the last 10 years on the primacy of the social sectors, the state still has some of the poorest social indicators in the country. Though the literacy rate has climbed sharply in the last decade from 44% to 64%, the state ranks 18th among 35 states in the union in this regard. Female literacy rate is 50.3%. The state has a gender ratio of 920 females /1000 males (Office of the Registrar General & Census Commissioner, 2001). The current population below poverty line is 37.4%, 19 million people in absolute terms (Government of Madhya Pradesh, 2007).

Agriculture is the mainstay of the state's economy. 73% of the workforce is employed in this sector. However, much of agriculture in the state is traditional, mostly rain fed. Production is thus dictated by natural constraints - rain variability, limited irrigation (less than 25% of gross sown area is irrigated in the state), inhospitable soils and difficult terrain. Yields for all major crops are significantly lower in the province compared to the national average, though the province produces 75% of the country's soybean output and 25% of its oilseeds. There has been limited industrial investment in the state, mostly centered around mining. Provincial GDP in the year 2000 was estimated at 737,150 million rupees (Government of India & Ministry of Statistics and Program Implementation).

Fig 2: Madhya Pradesh



Health status and health care system

Despite efforts of the provincial government over the last 10 years, basic health indicators in the state are among the most dismal in the country. Life expectancy at birth stands at 59 years for males and 58 years for females (Government of Madhya Pradesh, 2007). As per the most recent estimates on longevity, life expectancy for males and females in MP was the lowest among all the major states in India and four to eight years lower than the national average.

The infant mortality in the state in the most recent national survey (sample based) (International Institute for Population Sciences & Macro International, 2007) was estimated at 70 (76 for rural areas and 47 for urban areas) as against a national infant mortality rate (IMR) of 58, the highest among all states in the country. Between 2000 and 2004, while the national IMR reduced from 68 to 58, the IMR in MP dropped from 88 to 70.

The province had a maternal mortality ratio of 498/1000 (Registrar General of India, 2000) which decreased to 379/1000 as per the data released in 2006 (Registrar General India, 2006). However confidence intervals on both estimates are wide. Only 40% of women receive the prescribed 3 antenatal care check-ups and 30% of deliveries are institutional.

The median age of marriage for girls in MP is the lowest in the country at 15.1 years. The total fertility rate for women aged 15-49 years is 3.6 against a national average of 2.9.

The Public health care system

The public health care system MP is similar to the public health system in the rest of the country. It suffers from similar difficulties as described earlier. The coverage of public health system is poor. There is a shortage of health centers based on population norms and actual access is even poorer if regard is given to the distance that people have to cover to reach centers in remote tribal areas. Besides, there is a shortage of buildings, equipment, drugs and most importantly staff, especially medical officers and specialists, in the existing facilities resulting in unreliable services with people preferring to go to private practitioners for even minor ailments. As a result government facilities are often under utilized.

The institutional framework of public health system in the province is characterized by high centralization, poor delegations, weak accountability mechanisms, weak human resource policies, and inadequate control over the private sector.

Financing of health care in the public health system

Health financing in the state is characterized by extremely low public expenditure, high share of out-of-pocket expense, poor coverage of insurance schemes and inefficient targeting of public subsidies. Per capita expenditure on health in the state was Rs 1200 (USD 30) as compared to national average of Rs 1377 (2004-05). Share of household expenditure is one of the highest (83% as compared to national average of 73%) (Government of Madhya Pradesh, 2006).

Understandably, per capita public expenditure on health is one of the lowest (Rs 132 as compared to national average of Rs 207) (Government of India, 2006). Even as public expenditure on health is very low in the state, rich gain disproportionately more from the curative care as compared to the poor (the ratio of subsidy of richest to poorest quintile in the state was 4.16 as compared to the national average of 3.28) (D. Peters et al., 2002). These inequalities were more pronounced in rural areas than urban. The richest 20% of the population in rural areas enjoy 40% of the subsidies; the poorest 20% only 8.4%. However, targeting is better at the PHC level. The share of primary health in total public expenditure on health has varied between 50-60% in recent years which compares favorably with other states.

However, more than 80% of the expenditure is pre-committed for establishment costs (salaries and wages). Less than 2% of the population is covered by any risk pooling / insurance scheme. This, coupled with absence of a social protection scheme, exposes the poor to catastrophic economic and health consequences of illnesses (Government of Madhya Pradesh, 2006).

The Private health sector in Madhya Pradesh

In MP, despite decades of public health care provision and financing, a vibrant spectrum of private providers also function alongside the public health care system. Recent studies (Department for International Development and the Government of Madhya Pradesh, 2002) have shown that there is a marked preference for private providers in urban and rural areas despite additional costs incurred in payment for the services. The total number of private service providers in the state, their scope of activities, locational preferences, their institutional arrangements, systems of medicine practiced, commercial orientation and other details are not known. Studies on the private providers in MP have been carried out in one district, Ujjain (Deshpande et al., 2004) where in a detailed mapping of all providers - public and private was undertaken. Besides this, another study assessed the private health sector on a sample basis (Department for International Development and the Government of Madhya Pradesh, 2002). It estimated that there are

0.16 million private health providers in MP when all qualified, formally trained and informal health care providers are included. This is much more than the total employment in the public sector.

In theory, most qualified practitioners are expected to be subject to self-regulation by their respective professional bodies (councils). In practice however, regulation is very limited to virtually non-existent. In case of unqualified practitioners (who form the bulk of private providers (greater than 50% in the Ujjain study), there is absolutely no system of regulation or accreditation. They are not represented by any formal agency at State level. This would imply that both their interests and the potential for integrating them in to the overall system are not currently realized.

The overlap between the public and private sectors

The public and private health sectors in the province have blurred distinctions as many providers (especially qualified physicians) are public providers in the mornings and private providers in the evenings. Dual practice is allowed by the state, after official hours. While most 'successful' private providers in the cities are full time private providers (with no public employment), dual practice is more common in smaller towns and in the hinterland.

Health policy makers

In the public sector these persons are most often located at the provincial headquarters in Bhopal and consist mostly of physicians, who started careers being service providers in the peripheral clinics and hospitals. They have been promoted over time by virtue of their seniority (or political influence). A few non-physician managers also exist, including demographers, nurses, and financial officers. However decision making power rests mostly with the civil service cadres (the non medical but influential Indian Administrative Service, who work as secretaries to the government). They are expected to make decisions based on information provided by the technical health staff (mostly physicians) who work at policy level.

In the case of the private sector, there is no single composite policy making body (as this sector is very diverse), however qualified private physicians who own/run large hospitals, or preside over professional bodies (like the Indian Medical Association, the Association of Physicians, Indian Academy of Pediatrics, Federation of Obstetrics and gynecologists) wield influence, and form lobby groups when any policy influencing the private sector comes to the fore.

Table 2: Overview of study design:

Study No.	I	II	III	IV	V
Research question	Mapping health care providers in the province	Distribution of providers in the province as a whole	Public and private sectors views of each other	Characteristics and distribution of private providers in the districts	Exploring relationships between background (context variables) and different categories of human resources for health in the districts of MP
Design	Methodology of the cross sectional survey and mapping , descriptive	Cross-sectional	Qualitative study (content analysis)	Cross sectional, district level (ecological)	Cross sectional (Ecological)
Study population/ participants	All health care providers in the 52117 villages and 394 towns of MP	All 263309 health care providers in MP	16 Policy makers (in both sectors) who have influenced the direction of health care in the province over the last 20 years	All 263309 health care providers in MP	All health care providers (categorized) in the districts of MP
Data collection	Survey using a structured questionnaire	Data from the survey analyzed at provincial level	In depth interviews using an interview guide	Data of private providers from the survey, analyzed at district level.	Provider data from the survey, secondary source data (from the census and other official records) analyzed at district level

Qualitative and quantitative methods have been used in this thesis.

Overview of study design

In paper I, the aim was to describe the methodology of the population based provincial survey to map health care providers. The data from this survey forms the basis of the subsequent papers (papers II, IV and V).

Paper II classifies the providers mapped into a typology based on qualification. Provider characteristics are then described in terms of sector of employment, institutional arrangement, system of medicine practiced and commercial orientations. This paper is analyzed at the level of the province as a whole.

Paper III is a qualitative study which aimed to explore through in depth interviews the perceptions that policy makers (some of whom were once providers) in the public and private sector, have of each other.

Paper IV and Paper V are analyzed at the level of the district. Paper IV studies the density of different categories of private health care providers in the districts of MP.

Paper V is an ecological study which explores the relationship between background variables (relevant to the context) and the density of different provider groups in the districts of MP.

Participants and data collection

The Population based survey of providers (Paper I)

The survey: The survey was a large one, covering the entire province (304,000 sq. km), home to 60.4 million people, from diverse distinct cultural backgrounds, living in its 394 towns and 52117 villages.

A ‘mother’ NGO, the NCHSE was identified jointly by Department of Public Health and Family Welfare (Dept. PH & FW) and the Danida program. The NGO had experience of working in a number of districts in the province, it had its own branches in some districts and partnered with other NGOs in other districts. NCHSE’s areas of work included environment management, education, information technology (including mapping work) and some work with the Dept. PH &FW.

NCHSE identified nodal staff in the districts (from its own or partner NGOs) who were invited to Bhopal, the state capital in batches to be trained in the survey methodology. Each batch was trained for a 2 day period – the first day involved an explanation of why the survey was being done, getting started, using the survey instrument, using the survey guide (explained below), and mock interviews with one another; the second day involved a practice session in the community.

The training was conducted by 3 persons – one from the Dept. PH &FW, one from the NCHSE and one from the Danida program (usually me). We adopted a cascade strategy to train teams in every district, with the training being held initially in Bhopal, then later at the 9 divisional headquarter towns of the province and then within each district at its capital.

The nodal person from each district traveled back to his/her district and with the support of the district level Office of Health, put together a team of district level staff who identified trained and supervised surveyors within the district.

The training in some districts and the survey in others proceeded simultaneously. All waves of the cascade were completed over a 6 month period.

Development of the survey instrument: The survey instrument was developed in consultations with the Danida program, and the Dept. PH &FW. The Joint Director, MIS, and the State Health Commissioner were specifically involved. The initial instrument to interview the health care providers was pilot tested in one urban town (Dewas) and one rural district (Jhabua) by NCHSE staff from both these districts. Following this pilot, the instruments (short questionnaires in Hindi) were finalized.

A survey guide was also developed in Hindi, explaining the questionnaires and each question in detail, possible responses, and ways of entering these. Besides the methodology for carrying out the survey in a rural and urban area were described. I shall not go into the details here as this is described in detail in paper I.

Data collection: This activity began in April 2004 through to December 2004. All providers in the 394 towns and 52117 villages serving the 60.4 million population of the province were sought to be mapped. 346 surveyors participated in the survey on the ground (1038 person months in total). All district health offices were informed of the survey in their respective districts by the Commissioner, Health, Government of Madhya Pradesh. The process of survey in rural and urban areas (villages and urban wards were the basic units of the survey) are described in paper I.

Interview particulars are also described in paper I, these differed in case of individual and institutional providers. The detailed interview schedules are appended on page 67.

Supervision: Rigorous controls were maintained over the quality of incoming data. Supervisory functions were in place at different levels. Field supervision of surveyors in the field was done at block level. A sample of schedules (10%) underwent two rounds of manual scrutiny at the district level and then again at the provincial capital in Bhopal. Inconsistencies detected at any level were corrected by a re-survey of the village concerned. In addition, villages with a population more than a 1000 were resurveyed (17000 villages).

Data management: Data was entered using on screen data entry forms in Visual Basic. The entry forms had built in methods to ensure data was correctly entered. Data from the forms was sucked into Microsoft Access data fields. Data entry required a total of 75 person months.

The process of digitizing maps

This was carried out in Bhopal at the computer division of the NCHSE. Official hand drawn index maps of villages in the province were obtained from the Commissioner, Land Records, Government of Madhya Pradesh. The process of digitization and the mapping of providers on these digitized maps are described in Paper I.

A classification and analysis of providers at provincial level (paper II)

This paper aimed to demonstrate the size and composition of the private health sector in the province as a whole. This paper was a first phase analysis of the data that was obtained from the survey. Providers were classified into a typology based on qualification. The density of providers in the public and private sectors, and in rural and urban areas was estimated.

Interviews with policy makers (Paper III)

The interviews with the policy makers were conducted against a similar backdrop as the survey was. The province was in the process of evolving its own health policy. At this juncture, as part of the process, interviews were conducted with key policy makers (public and private sectors) with experience in the health sector to explore their perceptions on a variety of issues which were under discussion in the policy. The areas covered were equity, possible financing mechanisms for health care, extent of state responsibility for health care, regulatory role of the state, the dominant flourishing private sector, international donor assistance to the state and influences on health policy in the past. For the study in this thesis, the qualitative paper focuses on the perceptions that (policy makers in) the public and private health sector have of each other.

I conducted the interviews with 16 policy makers in the province using an interview guide which covered the above areas. The interviews were mostly in English with some spontaneous conversation in Hindi. Participants included both men and women between the ages of 40 and 70, each of whom had over 15 years of experience in his/her profession. All participants were resident in the province at the time of study, and agreed to be interviewed.

Most of the interviews were conducted in the official premises of the participant.

Interviews on average lasted between 60-90 minutes. The interviews were tape recorded and transcribed verbatim for analysis.

Private providers in the districts (Paper IV)

This ecological study, which also draws on data from the survey, focuses on the distribution of private health care providers (providing ambulatory care) across qualification category at the level of the district (the province had 45 districts at the time of the study).

The paper aims to highlight the difference in provider density in the urban and the non-urban districts. The paucity of qualified women providers are also brought out in this paper. The heterogeneous constituents of the large group 'qualified non-doctors' are enumerated and described here.

Exploring relationships between context and human resources for health (Paper V)

This paper (also an ecological study at the level of the district) explored relationships between certain contextual variables and the densities of different health care provider categories, in the public and private sectors in the districts of MP province. Access to health care providers for scheduled castes and tribes was specifically studied.

The dependent variables were the district-wise densities of the five provider categories, i.e. physicians and paramedics, both separately for the public and private sector; and unqualified providers (private sector only). The independent variables included district-wise infrastructure, economy, urbanization, female literacy and the proportion of scheduled castes and tribes. The choice of independent variables was based on (i)

relevance for characterizing aspects of the local context, (ii) availability of observable indicators and (iii) recommendations from literature. In case of economy and infrastructure, a choice of indicator variables was made from available official statistical information. Data for GDP per capita at district level is unavailable for this province. As an indicator for economy, we therefore used the proportion of population employed in non farm occupations (Non farm work being defined as employment in all types of activities not based on farming and agriculture, and includes the secondary and tertiary sectors of economic production (plus mining and quarrying from the primary sector).

Data Analyses

Paper I

This paper describes the context and survey methodology and contains no analysis of the collected information.

Paper II

Health care providers were defined as those persons providing health care to people presenting with symptomatic illness episodes. They were classified on the basis of qualification into 4 categories: qualified doctors, qualified non-doctors (paramedical staff), informally trained and unqualified providers.

Providers were divided into public and private sector providers. Public providers were defined as those providers working in a governmental health facility (practicing any system of medicine). Private providers were defined as persons practicing any medical system outside governmental employment, including practitioners without any official training. The last two qualification categories are exclusively private sector and not employed by the public sector.

Providers were also classified into rural and urban, based on the location of practice. Statistical tests to compare between the groups were not applied here as the providers listed in the survey did not constitute a sample, but the whole universe of providers in the province.

Paper III

Qualitative content analysis originates from media and communication research and has been described as a flexible method for analyzing text data (Hsieh & Shannon, 2005). The method focuses on communication, and addresses the content and contextual meaning of the text. The flexible nature of qualitative content analysis has created some confusion about its theoretical foundation and conceptual definitions. Graneheim and Lundman (Graneheim & Lundman, 2004) have tried to sort out some of the confusion by reviewing the literature and defining concepts pertinent to qualitative content analysis. Following their approach, my analysis consisted of a dynamic process between the descriptive and interpretive levels of the content.

The descriptive level is referred to as the manifest content and describes the visible and obvious components in the text. The interpretive level is defined as the latent content of the text and deals with the underlying meaning of the text (Graneheim & Lundman, 2004). In practice, however the distinction between descriptive and interpretive level is vague. The manifest-latent division is often seen as a continuum from highly manifest to highly latent (Neuendorf, 1994), and attention should be paid to both the manifest and latent content throughout the analysis (Berg, 2001). Graneheim and Lundman (Graneheim & Lundman, 2004) believe that both deal with interpretation, but that the interpretations vary in depth and level of abstraction.

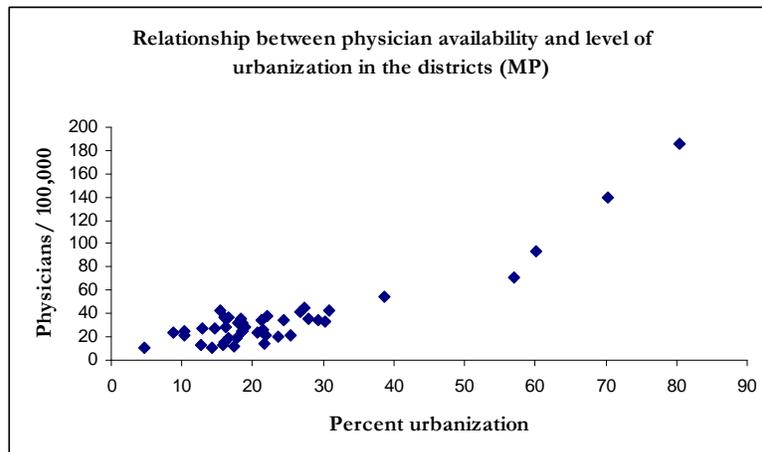
In my work on this paper, I have kept the above perspective and not seen the manifest and latent levels of analysis as mutually exclusive. I have approached the data by moving back and forth between various levels of abstraction. The goal was to discern underlying meanings and inter-relationships of the data. In this process, I identified meaning units in the original text material and assigned codes to these. The coding was then followed by comparison and grouping of codes into tentative categories. The next step involved interpretations of the categories by searching for themes expressing their latent content. In this paper, I worked on the entire process manually. I was responsible for the coding and categorizing of the data, but I worked closely with my co-authors whose roles I will describe on page 48.

Paper IV

Provider densities for each provider category were calculated per 100,000 persons in each of the 45 districts. In the initial analysis correlations between physician density and level of urbanization of the districts turned out to be strong. On studying the scatter plot for these two variables (shown in the fig 3 below), it was observed that 4 districts with highest levels of urbanization (greater than 50% urbanization) strongly influenced the correlations estimated.

These 4 districts are different from the remaining 41 in other ways as well (besides level of urbanization) in that they are political and economic hubs of the province (one was the state capital and the other were regional headquarters), have the large universities, hospitals, governmental offices, major railway junctions and house the four airports in the province.

Fig 3: Physician availability and level of urbanization in the districts



We therefore decided to treat these 4 districts as a separate group called the ‘urban districts’ and the remaining 41 districts as the ‘less-urban districts’. Subsequent analysis of physicians compared average physician densities in the two groups of districts (again no statistical tests were applied as this represented the entire universe of physicians in the province).

With regard to qualified non-doctors, there was no strong influence exerted by any district in particular, and district averages were reported for these for the 45 districts. In the case of birth attendants and unqualified providers, district averages are not presented because of possible undercounting of these categories of providers in urban areas.

Paper V

In this paper, we studied 41 districts (the 4 urban districts are different as explained above, and hence we removed them from this ecological analysis).

Strengths of the relationships were estimated using partial correlation coefficients.

Separate models for SC and ST were used.

Ethical considerations

Ethical approval for all the studies was obtained from the RD Gardi Medical College, India, which is one of the medical universities in the province.

In paper I, no sensitive information was sought from any of the providers. Providers were keen to enlist and all providers and their characteristics sought were common local knowledge. In paper III, all participants were formally invited to participate by letter.

Only those consenting to participate voluntarily were interviewed. They were informed in advance of the time required, and that the interviews would be taped and transcribed.

Confidentiality was assured to the participants. Tapes and transcripts were stored carefully, with only the researchers have access to the same.

RESULTS

Mapping providers – the population based survey (Paper I)

Paper I presents sample outputs from the information system presented through maps. This was developed using in part, the survey data for providers (besides secondary data for other parameters like basic socio demography, vital statistics, and health program indicators). While the number of outputs were restricted in the published paper (largely because of space constraints), here more detailed outputs from the system are presented.

The information system developed provides information at the level of the province, the district, the block and the individual village (by summation). Information is displayed in tabular form linked to any selected level (a district, block or village), or is viewed as icons (infrastructural data).

While all districts were mapped, sample outputs and statistics from the MIS for one district i.e. Chindwara have been presented below.

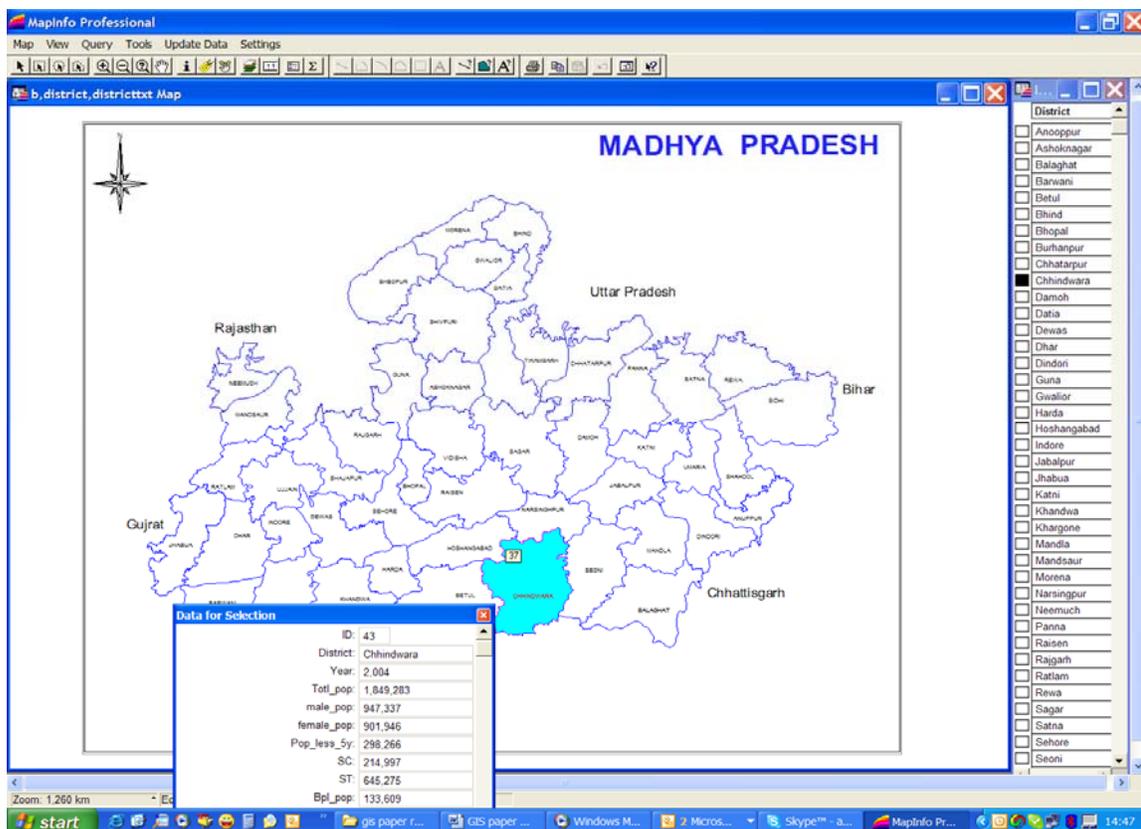


Fig 4: Districts of Madhya Pradesh Province (and Chindwara district)

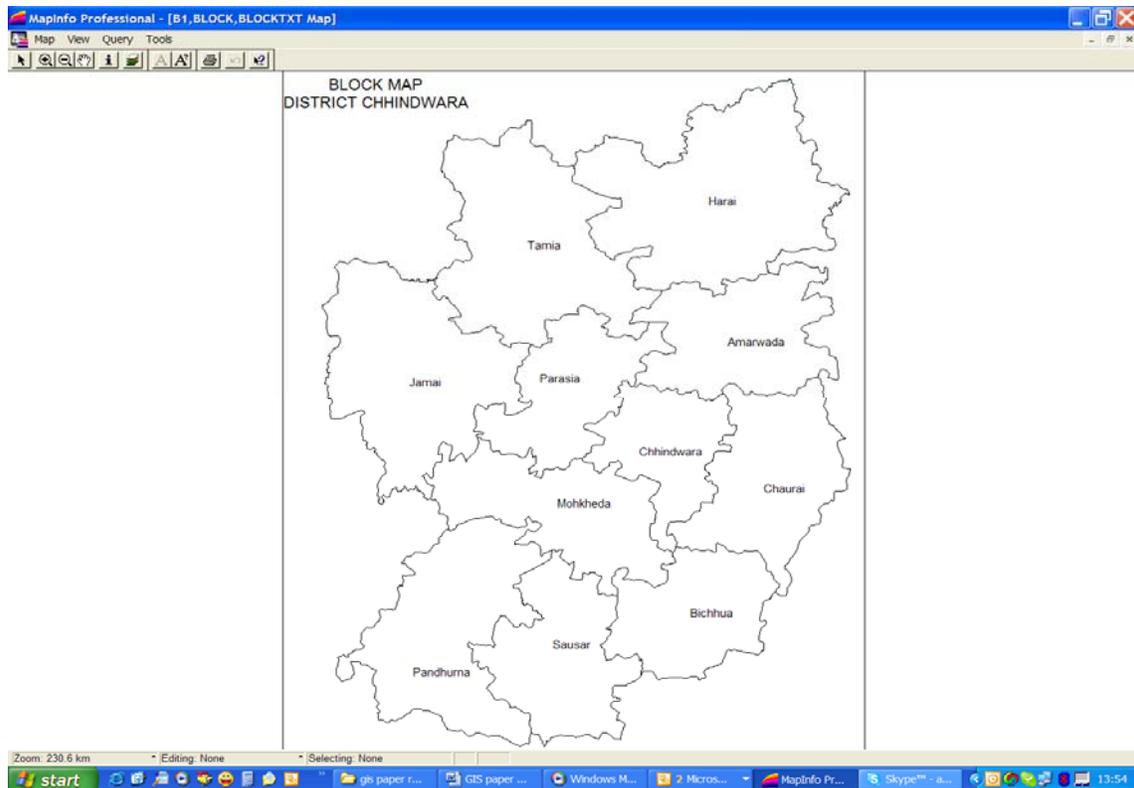


Fig 5: Blocks of Chhindwara district

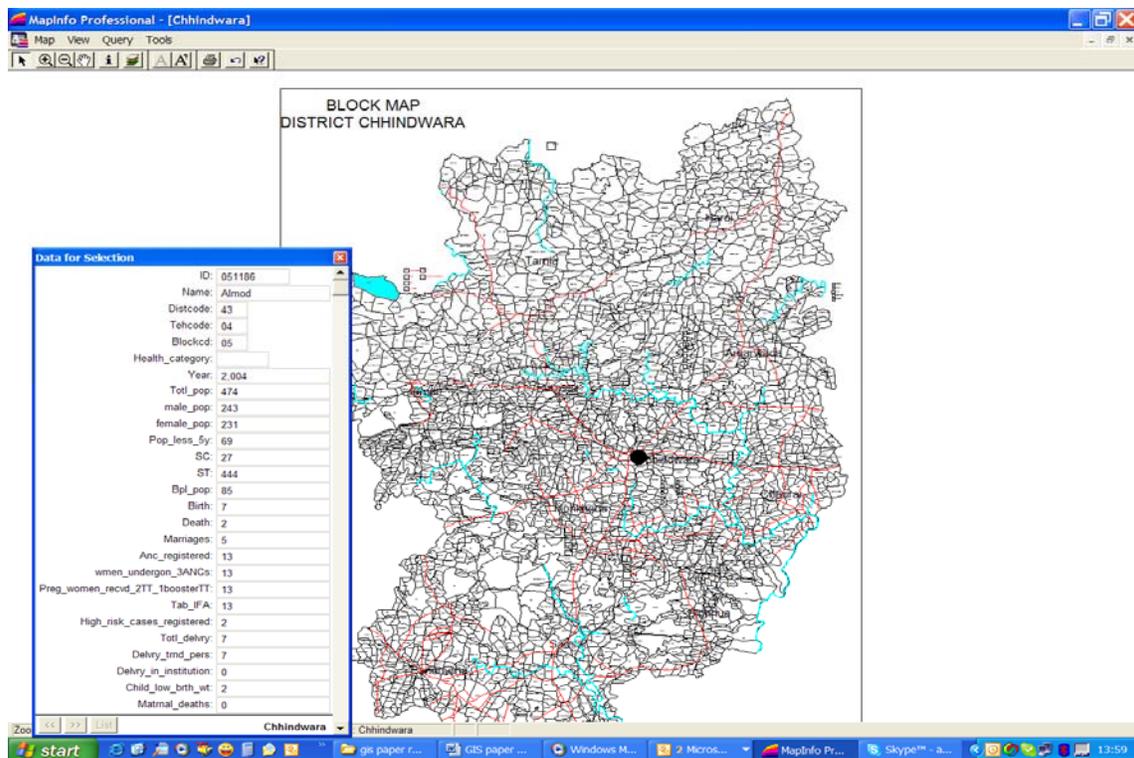


Fig 6: Villages, roads and rivers in Chhindwara district (the black dot is Chhindwara town)

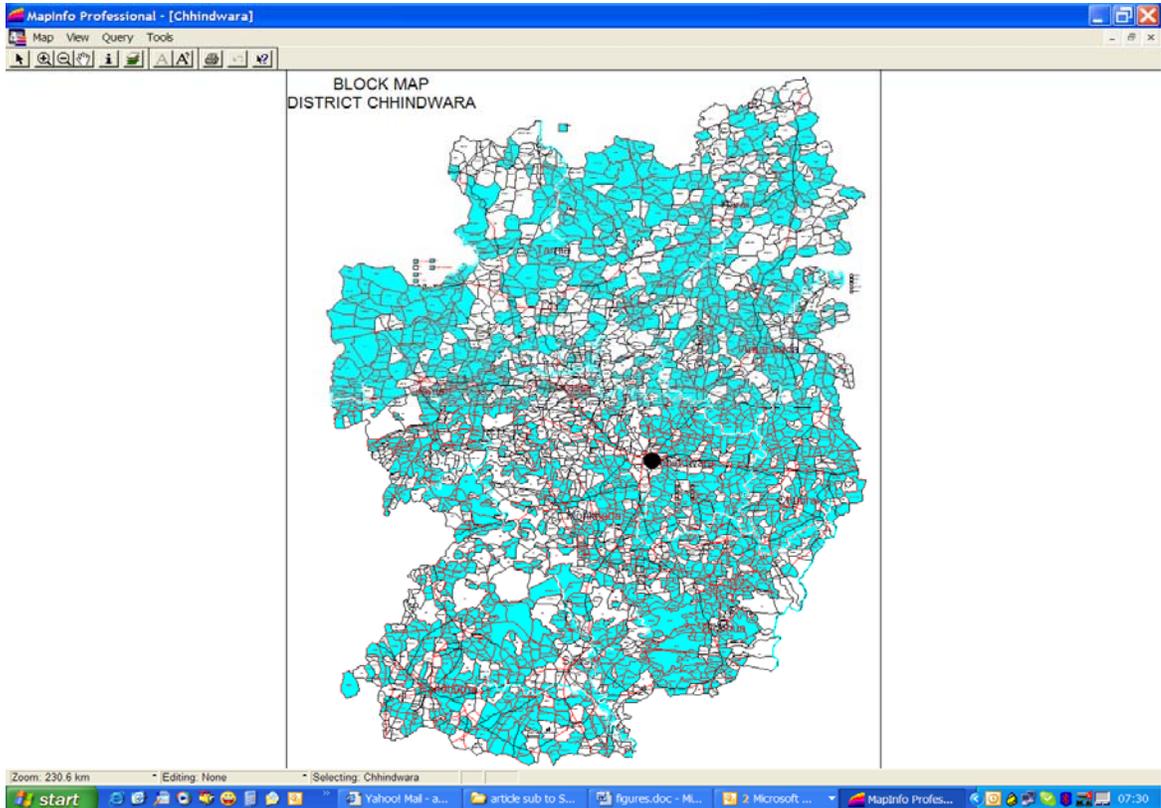


Fig 7: Response to a query: (villages with a Population of > 35% below poverty line).

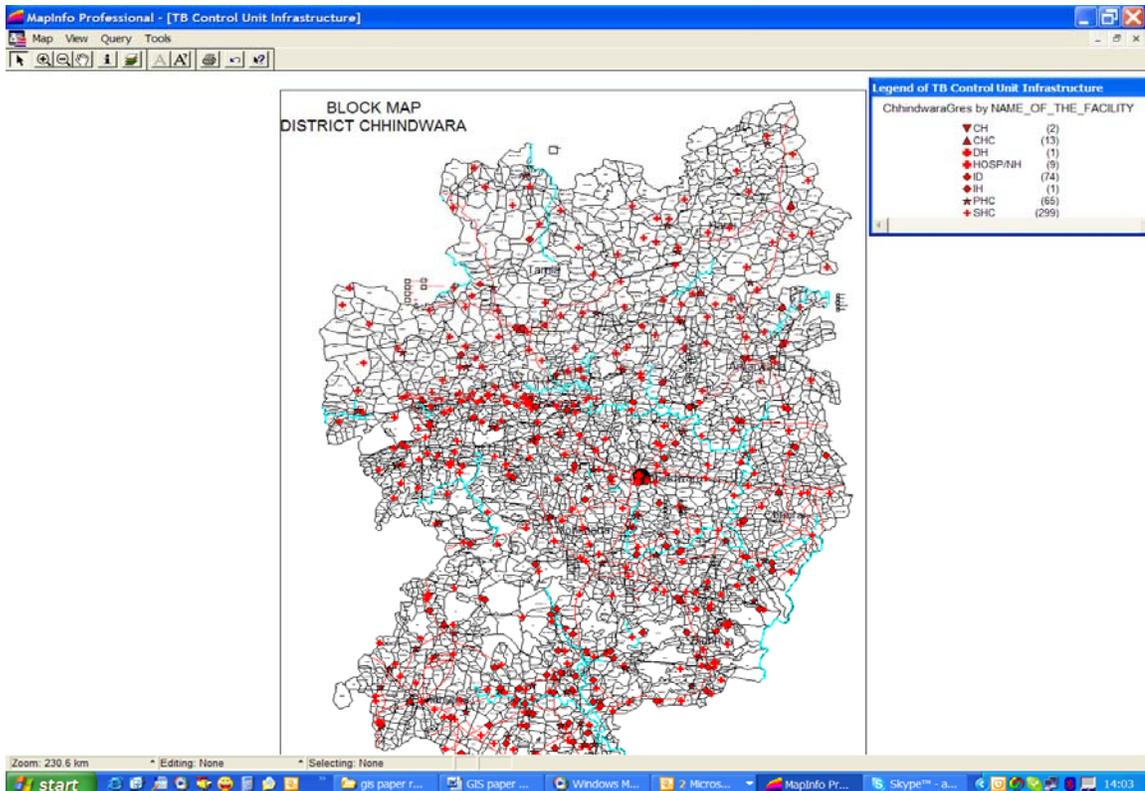


Fig 8: Public health infrastructure in Chindwara block.

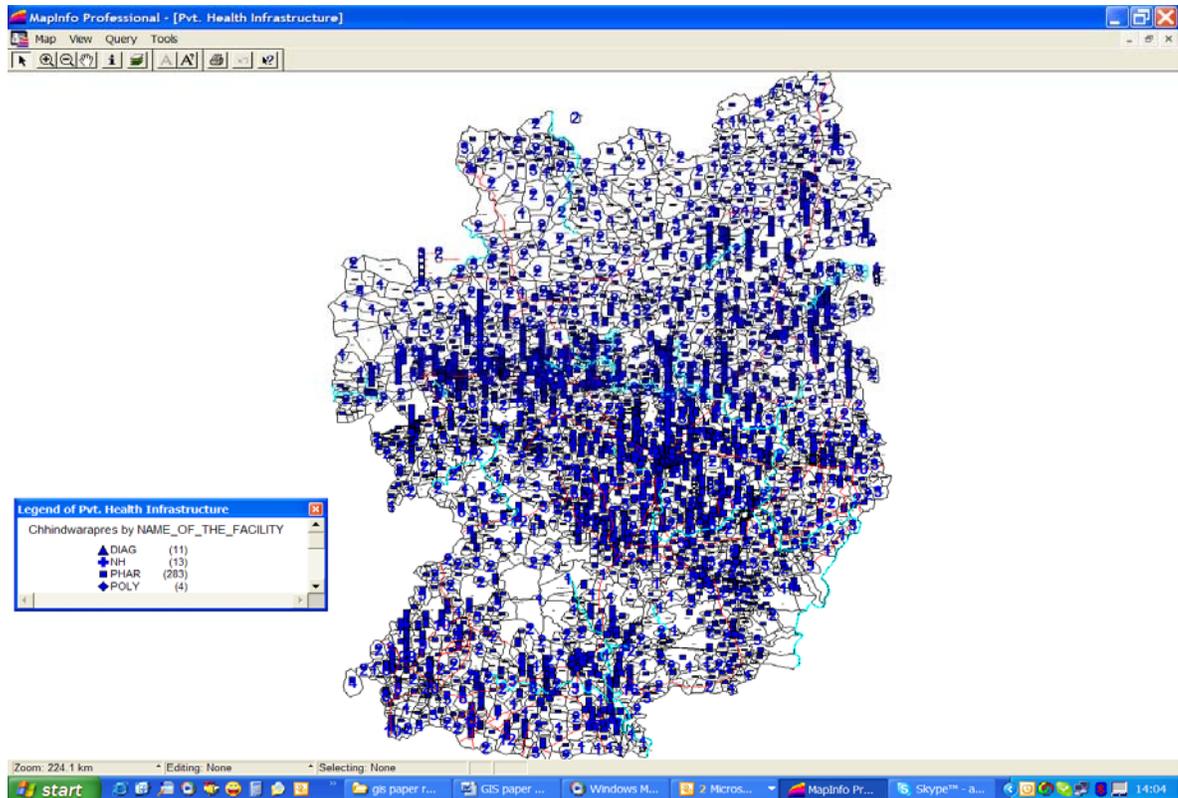


Fig 9: Private health infrastructure in Chindwara block

Where are the providers? Distribution in the province (Papers II, IV)

A total of 263,309 health care providers were enumerated. These were categorized on the basis on qualification into:

- (a) Qualified doctors: those with formal university degrees to practice allopathic (Western) or Indian Systems of Medicine & Homeopathy (ISMH)
- (b) Qualified non-doctors: trained paramedical staff with a degree or diploma, nurses, pharmacists, laboratory technicians, radiographers, health workers, ophthalmic assistants, barefoot doctors, diploma holders in ISMH
- (c) Informally trained providers: with a few weeks of training but no formal qualification (trained birth attendants)
- (d) Unqualified (untrained) providers.

Of the 24,807 qualified physicians identified, 19,176 (77.3%) practiced in urban areas (where 26% of the population resides). This means 1 physician per 834 urban and 7,870 rural people. Overall, three times as many physicians worked in the private sector as in the public sector. Private and public physicians were much more densely (12 times and 3 times respectively) located in urban than in rural areas

In the case of qualified non-doctors, 71.5% of the 94,019 qualified non-doctors served in rural areas. The density in rural and urban areas was similar with private providers in this qualification category dominating in both areas.

In addition, 55,393 traditional birth attendants and 89,090 unqualified providers were enumerated.

Only 12.6% of all hospital beds were in rural areas; mostly in the public sector.

The density of providers and beds in the public and private sectors in rural and urban areas are shown in table 3.

Table 3: Health care providers (by qualification) and in patient beds per 100,000 rural and urban population in the public and private sectors in MP, India

	<i>Per 100000 total population</i>			<i>Per 100000 rural population</i>			<i>Per 100000 urban population</i>		
	Total	Public	Private	Total	Public	Private	Total	Public	Private
Qualified doctors	41.3	10.0	31.3	12.73	4.5	8.2	120.5	25.2	94.8
Qualified non-doctors	154	43.7	110.3	149.5	37.6	111.6	164.5	59.6	104.2
No. of beds	82.6	49.2	33.4	14.17	12.6	1.5	272.3	149.7	121.5

Urban areas accounted for most institutions: Hospitals (68.3% of 2260), blood banks (96% of 65), diagnostic facilities (90% of 1226) and pharmacies (70.9% of 10614), mostly in the private sector. Private solo outpatient clinics dominate in the rural areas (88% of 133,412 such clinics)

Systems of medicine practiced: Multiple recognized systems of medicine exist which include allopathy and ISMH. Of solo providers, 62.1% reported practicing allopathy, 4.2% ISMH and 32.6% reported working with traditional systems.

Commercial orientation: Only 5.5% of in patient facilities and 10.8% of all beds were not-for-profit. 15.6% of solo providers (mainly qualified non-doctors and unqualified providers) reported practicing not-for-profit.

Summary

- Of the 24,807 qualified physicians identified, 19,176 (77.3%) practiced in urban areas (75.8% in the private sector); 71.5% of 94,019 qualified non-doctors are in rural areas. In addition, there are 55,393 traditional birth attendants and 89090 unqualified providers
- Most hospital beds (87.4%) are in urban areas as are institutions – hospitals, blood banks, diagnostic facilities and pharmacies. Most of these institutions are private sector owned.
- System of medicine practiced: Allopathy is the dominant system (62.1%); ISMH and traditional systems are also practiced
- Most providers (84.4%) and institutions (94.5%) functioned for profit.

The dominant private sector in the districts - maldistributed (paper IV)

The above analysis (paper II) done at the level of the province as a whole, showed the dominance of private sector health care providers.

On further analysis of the private health care providers, 14046 of 18758 (74.9%) private physicians, 87% of qualified non-doctors, all birth attendants and unqualified providers worked individually in solo set ups.

The distribution of this subgroup of providers was also studied at the level of the districts (paper IV), given their importance in the provision of ambulatory care.

For physicians, there were on average 312.1 private solo physicians in any district, only 39.7 of whom were women. 59% of all these 14046 physicians qualified in allopathy (17.4% women) while the other 41% qualified in ISMH (only 6% women). Practice across systems was reported by 39.8% of ISMH qualified physicians.

With regard to studying physician distribution, districts were divided into Group 1 (the 4 urban) and group 2 (the 41 less-urban districts) as explained in the previous section on page 29.

As seen in table 4, the ratio of physician density in group 1: group 2 districts was 4.3:1, the disparity mostly contributed by private physicians, but in part by public physicians as well.

Table 4: Distribution of physician categories between the two groups of districts (absolute numbers and per 100,000 population)

<i>Physician categories</i>	<i>Total physicians (per 100,000)</i>		<i>Ratio per 100,000</i>
	Group 1 (n=4)	Group 2 (n=41)	
All qualified physicians	9910 (122.3)	14896 (28.4)	4.3 : 1
Public sector physicians	1860 (22.9)	4190 (8)	2.8 : 1
Private sector physicians	8052 (99.4)	10706 (20.4)	4.9: 1
<i>Private sector physicians</i>			
Private institutional physicians	2842 (35)	1869 (3.6)	9.7 : 1
Private solo physicians	5208 (64.3)	8837 (16.9)	3.8 : 1
Private solo male physicians	4214 (52)	8003* (15.3)	3.4 : 1
Private solo female physicians	994 (12.3)	799 *(1.5)	8.2 : 1

* sex is missing for 35 physicians in group 2

Besides the overall disparity in physician density, the low density of female qualified private physicians was notable being 1.5 per 100,000 in the less-urban districts. Less than 0.01% of solo physicians reported practicing not-for-profit in either of the two district groups.

With regard to qualified non-doctors, as there were no large differences in densities across districts, they were not analyzed in separate groups.

Each district had on average 153.8 qualified non-doctors per 100,000 people (43.4 public and 110.5 private). Of the 110.5/100,000 private paramedics, 96.1 per 100,000 worked as solo providers (only 3.3 of these were women). This group consisted largely of Jan Swasth Rakshaks (the equivalent of barefoot doctors), pharmacists, diploma holders in ISMH and laboratory technicians.

Of the 55393 TBAs, only 0.01% of were men. Among the 89090 unqualified providers, excluding the subgroup of untrained TBAs (17.7%), 97.2% were male.

Summary

- The ratio of physician density (total) in the urban and less-urban districts is 4.3:1. Only 12.8% of qualified physicians in the province are women.
- Most qualified private health care providers (74.9% of qualified physicians and 87% of qualified non-doctors) practice in solo out patient set-ups.
- Access to women physicians is low, particularly in the less-urban districts (1.5/100,000).
- Of the private qualified non-doctors practicing solo, only 3.4% were women. This category of providers mostly constituted barefoot doctors and pharmacists.
- Nearly all TBAs were women, while most unqualified providers (80%) were men.

Scheduled castes, tribes, context and human resources for health (paper V)

District estimates of the mean provider densities at 3 levels (high, intermediate and low) defined by dividing the districts into tertiles (of 13, 14 and 14 districts) with regard to each of the independent variables were first calculated. This was to identify any trends in provider density with increasing values of each of the independent variables. The mean public physician density varied from 7.2 to 8.5/100,000 between the groups; an increase in average density was seen in tertiles with high female literacy. Private physician density increased with increasing economy, urbanization and female literacy. Public paramedics were denser in less urban and economically backward districts. Private paramedical staff density increased as infrastructure (roads) decreased in the districts. The density of unqualified providers (71.5% of 94,019) was similar to that of public paramedics. In the high SC districts, on average there was a lower density of public doctors and paramedics, while the opposite was seen with high ST districts.

There were statistically significant correlations observed for some pairs of the independent variables. SC and ST proportions in the districts were strongly negatively correlated ($r = -0.90$). (In regression models, these had a variance inflation factor [VIF] of between 5 and 6). Therefore separate analyses were subsequently conducted including either SC or ST in the model. Urbanization and economy were strongly positively correlated ($r = 0.615$), though the VIF in regression models was less than 2. There were no strong correlation between infrastructure and any other variable. Systematically opposite signs of the correlations for SC and ST with other variables were observed. There were no strong correlations observed between the dependent variables.

Table 5 shows the simple and partial correlations between the five provider group densities and the independent variables. The simple Pearson correlation coefficient is denoted as r whereas r^2 denotes the partial correlation coefficient in a multiple linear model with urbanization, economy, female literacy and infrastructure and SC proportion but without ST proportion. The partial correlation coefficient in a model with ST proportion but without SC proportion is denoted r^2 . The partial correlation measures the correlations between variables in pairs assuming all other variables are fixed.

For public physician density there was an almost statistically significant positive correlation with female literacy and positive but statistically non-significant correlations with infrastructure and urbanization. There were comparatively high partial correlations with the ST-variable as well as the SC-variable.

For the private physicians the pattern was the same as for public for female literacy and the ST and SC variables. There was also a rather strong positive correlation with urbanization. The comparatively high simple correlation with economy was not supported by the corresponding partial correlations indicating that the simple correlation resulted from mutual correlations with other variables in the system. A good candidate is urbanization which was strongly correlated to both economy and private physician density and appears to be a good explanatory variable for the variations of private physician density.

Table 5: Simple and partial correlations between the five provider densities and the independent variables in the 41 districts.

		<i>Public Physicians/ 100,000</i>	<i>Private Physicians/ 100,000</i>	<i>Public Paramedics /100,000</i>	<i>Private Paramedics /100,000</i>	<i>Unqual providers /100,000</i>
<i>Infrastructure</i>	<i>r</i>	.09	-.18	.06	-.35	.20
	<i>r</i> ²	.16	-.01	-.01	-.43	.09
	<i>r</i> ² ^{**}	.16	-.02	-.01	-.42	.08
<i>Urbanization</i>	<i>r</i>	.10	.60	-.36	-.11	-.40
	<i>r</i> ²	.18	.55	-.31	-.40	-.12
	<i>r</i> ² ^{**}	.17	.57	-.33	-.42	-.13
<i>Economy</i>	<i>r</i>	.04	.34	-.20	.14	-.38
	<i>r</i> ²	-.10	-.12	.01	.32	-.11
	<i>r</i> ² ^{**}	-.08	-.10	.02	.31	-.09
<i>F literacy rate</i>	<i>r</i>	.25	.41	.09	.25	-.28
	<i>r</i> ²	.32	.27	.31	.23	-.06
	<i>r</i> ² ^{**}	.38	.35	.35	.22	-.01
<i>SC</i>	<i>r</i>	-.21	.11	-.31	-.04	-.40
	<i>r</i> ²	-.31	-.26	-.22	-.12	-.23
	<i>r</i> ² ^{**}	-	-	-	-	-
<i>ST</i>	<i>r</i>	.20	-.07	.29	-.08	.50
	<i>r</i> ²	-	-	-	-	-
	<i>r</i> ² ^{**}	.36	.37	.27	.05	.35

*The limit for simple correlation coefficients to be statistically significant at the 5% level is +/- 0.32.
The limit for partial correlation coefficients to be statistically significant at the 5% level is +/- 0.34.*

Public paramedic densities correlate negatively to urbanization. The pattern of correlations with economy resembled that for private physicians but with opposite sign. There were positive partial correlations with female literacy in spite of the simple correlation being close to 0. No clear explanation for this is readily seen in the simple correlation between independent variables. Some more complex mechanism is responsible. The conclusion was however, that literacy is of importance for the variability of public paramedic density. The correlations with ST and SC-variables were again similar as for the other dependent variables.

The private paramedic densities correlated negatively with infrastructure and urbanization and positively with economy and literacy. The correlations with ST and SC-variables were again similar as for the other dependent variables. Several variables could explain parts of the variability in private paramedic density between districts.

The partial correlations of unqualified provider densities with ST and SC-variables followed the same pattern as for other provider categories. The simple correlations for

the other variables were accompanied by partial correlations that are indeed small. The ST or SC variable appeared to be the only one with some explanatory power for the variation in unqualified provider density.

Female literacy and the ST or SC variables, explained 10 -35 % of the total variance for all the dependent, density variables as estimated by the appropriate multiple correlations. Economy contributed specifically only for private paramedics. Higher urbanization coincided generally with higher private physician densities and lower densities for both paramedic categories. Higher values for infrastructure tended to correspond to lower private paramedic densities.

Summary

- Public physician density in the districts correlate strongly with SC (negatively) and ST (positively) proportions in the districts. A strong correlation is also seen with female literacy rates.
- Private physician density in the districts is strongly correlated with level of urbanization and female literacy. The relationship with SC and ST proportions is similar to that seen with public physicians
- Public and private paramedical density correlate negatively with urbanization and positively with female literacy. The relationship of the former with SC and ST proportions is similar to that seen with public physicians. Private paramedical density also correlates positively with the economy variable.
- Unqualified provider density in the districts correlates strongly with SC (negatively) and ST (positively) proportions in the districts
- Overall, for all provider groups in the districts, there is a negative correlation with SC and a positive one with ST proportions in the districts.

Barriers of mistrust! Public and private health sector perceptions of each other (Paper III)

Our analysis showed the emergence of a main theme, ‘Mutual lack of confidence between the public and private sectors affects collaboration’, including sub-themes, categories and subcategories thereof. The theme comprised of two sub-themes, the first concerning the mutual perceptions held by each health sector of the other (table 6 shows the construction of the theme). Public sector perceptions of the private sector include it being driven by commercial interests, poorly responsive to partnership initiatives and focused on self interest. The private sector on the other hand perceived the public sector as being non supportive, corrupt, making unrealistic demands in the name of partnerships and saw no benefits for themselves in collaborating with public sector programs. The second sub-theme which emerged was the limited collaboration between the two sectors. This seemed largely influenced by the way each sector perceived the other.

Public sector perceptions of a market driven private sector, serving the rich and poorly responsive to partnership initiatives:

Public sector persons tended to perceive the private sector as being driven mainly by economic interest. The phrase ‘make money’ was often used to describe perceived private sector motives. There was the perception that as private providers were in health care primarily to earn a livelihood, the interests of the client were secondary.

Table 6: The construction of sub categories, categories, sub themes and theme.

Theme: Mutual lack of confidence between the public and private sector affect collaboration		
Sub theme: Mistrust of each sector by the other		Sub theme: Limited collaboration
Category: Public sector perceptions: a commercial private sector, focused on self interest	Category: Private sector perceptions: a hostile public sector	Category: Limited public private partnerships
<i>Sub categories:</i> A market driven private health sector operating for profit: Private sector: serving the rich	<i>Sub categories:</i> Unsympathetic attitudes of public sector No apparent incentives for collaboration with public sector programs	<i>Sub categories:</i> Little cooperation between the two sectors Divide between public/ private sectors along preventive/curative services lines Potential areas for PPP
Responsiveness of the private sector to PPP initiatives	Existing government regulations are 'restrictive'	

"Let us be quite clear that the people in the private health sector are (there) for earning their livelihood and what motivates the private sector, non-government sector is really the economic incentive". (Public sector, male)

There was an element of subtle moralistic judgment evident in the perceptions of public sector participants towards the private sector, related to the fiscal motives of the private sector.

"Private sector, they are.... I mean not doing justice with their jobs... basically they are more interested in money making or profit making." (Public sector, male)

Another public sector respondent had this to say:

I think the private sector is not made for that ordinary person who is called poor. He cannot afford.... even a middle class person cannot afford the treatment in the private sector. Private sector is good for the upper class. Private sector is good if you have insurance. Private sector is good for those... who are... I mean moneyed people'.

Public sector officials did not believe in the possibility of the private sector engaging in philanthropic or charitable professional actions, which reflected an underlying lack of trust in the private sector. There was a perception among public sector persons that the private sector had reneged on commitments made by it to the public sector in this regard. One public sector official explained that the government had given subsidies to private health sector persons on the condition that they provide some free services to people below poverty line. However he did not believe that the private sector kept its end of the commitment.

A public sector official had the following example to demonstrate his view of the private sectors' non serious commitment to philanthropic work.

'The Private sector says that they provide free services and charity services. In fact, this is not true, as charity services should be provided from 10 a.m. to 11 a.m., then Doctor comes five minutes to 11. And now the time (for charity work) is over, now you (patients) have to pay, you see.'

Some participants who considered the informal private health sector acknowledged that this sector catered to the health needs of the poor, though the services were of questionable quality. The view that the public health sector was an available resort for poor people was commonly held.

Public sector persons had mixed perceptions on the responsiveness of the private sector to public sector initiated PPPs. Some public sector respondents held the view that the private sector was not forthcoming to participate in these initiatives. However, there were other public sector persons who perceived that some of these initiatives tended to make unrealistic demands on private providers and so were not really feasible.

'We (government) are offering them (private sector) difficult terrain where we have failed, so we don't gain their confidence'. (Public sector, male)

Private sector perceptions of a hostile public sector

The private sector respondents perceived the public sector as being unfriendly and oppressive. Private sector respondents believed they were doing a job that was 'constitutionally the responsibility of the government', and therefore merited more governmental support.

There was the view that instead, the government did not constructively support the private sector in any way, rather they perceived being at the receiving end of government policies. There was a sentiment of being taken advantage of by government; this was evident in the use of the words 'being squeezed' to describe how the public sector dealt with the private sector.

The private sector perceived the public sector as being corrupt, and held it responsible for the corruption seen in the profession. One respondent said the public sector accepted bribes from the private providers for various administrative processes linked to the practice of their profession (recognition of private institutions as valid treatment centers for state insurance was cited.)

'The medical profession is being corrupted by the government itself, and this is a very bad sign for the future.' (Private sector, male)

Private sector persons had complex perceptions of collaboration with public sector programs. Some questioned how these programs could really be national if the government excluded the private sector.

'These are not national programs; these are government programs, until and unless they involve all the private sector.' (Private sector, male)

The private sector respondents clarified though that they were willing to participate in the programs if there was an incentive. One respondent reasoned that if the public sector paid its staff to run the national programs, then it (government) should also be willing to pay private providers if it wished to enlist their services.

A private sector participant expressed that private sector persons did have a sense of national solidarity, but the need to earn a living took precedence over this sensitivity.

'We also have national feelings, but most of the private doctors are helpless, we have to think of our stomach....' (Private sector, male)

A public sector participant corroborated this view by expressing that he saw no reason why a private person earning his livelihood through health care, would collaborate with a public sector program; unless there was some 'win' situation for him (was incentivized in some way).

'Merely appealing to a private person's 'national' sentiment is inadequate motivation'. (Public sector, male)

Incentives came across as an important precondition for collaboration with public sector programs.

Limited public private partnerships

Respondents from both sectors perceived that there was very little cooperation between the public and private health sectors. One respondent expressed the perception that there was a necessity to have an equal discussion (devoid of hierarchy) between both sectors.

"There is total absence of dialogue between the government and the non-governmental health sector excepting socially. The point is that unless you have an ongoing dialogue where you discuss matters on the basis of equality, it won't work. It is not a question of giver and taker." (Public sector, male)

Another respondent from the private sector also stressed the lack of cooperation and common vision. He perceived that it was the responsibility of the government to harness all sectors (private, public, parastatal and charitable) involved in health care together.

'Everybody (all sectors) is going in different directions, we have a circle in which we don't have our face inside, we have our faces outside. There is no co-ordination, no co-operation.' (Private sector, male)

Private providers were perceived by public sector persons as being more focused on curative care rather than on preventive care (public health). Whereas the public sector was considered to be more public health focused. There was also the suggestion that the private sector was more involved in the more specialized, expensive aspects of curative care.

The perceptions concerning each health care sector's role—public health emphasis vs. curative care emphasis—seemed to affect the possibility of developing PPP, as the public sector saw its priority to be preventive care where it did not perceive the presence of any private sector to collaborate with.

"There is no public-private partnership at the village level, or where we (government) require preventive health care. Our health status can be improved if we take care of the preventive aspects first, curative is secondary. .. Our (government) primary focus is preventive health care, where the existence of the private sector is not there". (Public sector, male)

This was also cited as an explanation for reasons why PPPs had so far possibly been restricted to bigger towns and cities.

DISCUSSION

Methodological considerations

Validity, reliability, and response in the survey: (Papers I, II, IV and V)

In this study we used a face to face interview method, whereby trained interviewers met providers to elicit information. The strengths of using this method include the advantages of personal contact i.e. they give the interviewer the ability to answer questions from the participant. If the participant, for example, does not understand a question or needs further explanation on a particular issue, it is possible to converse with him/her (Glastonbury & MacKean, 1991). The other advantage of using a face to face method is that the researcher has more control over the response rate here than with other types of survey research (as in mail surveys). Most providers were keen to enlist. It was only in situations where the provider was physically absent, that non response needed to be addressed. This was done by eliciting the details of the provider from informants in the same area (neighbors, school store keeper). As the information solicited was common knowledge to the local community, informants were able to provide adequate information. A weakness of the survey study was that records of how often information was obtained from a source other than the provider himself was not maintained. In debriefings, surveyors reported that this was unusual and occurred in 2-3% of cases.

The disadvantages of this oral survey method include cost. However, in our setting, where manpower is not relatively expensive, survey costs totaled 150,000 USD (at exchange rates prevailing end 2004). Costs are discussed in paper I where a detailed costing of the entire exercise is provided.

Bias, when using face-to-face interview for a survey may also be introduced, from either the interviewer or the interviewee. In this provincial survey, the questions were objective. An element of bias may have been introduced in the case of some respondents, who may have chosen to present a 'better' picture of themselves, than was really the case – motivated by fear of reprisal from the state (in case of less than qualified providers) or wanting to make a more positive image of themselves in the provincial health information system. Qualification certificates were not verified during the survey as this would have been impractical under the circumstances and would have been intrusive from an ethical standpoint. In most cases, though, provider qualifications are advertised on boards above the clinics and are known by others in the area. Respondent attitude could also have influenced survey results. In our survey, providers were not visited during their personal time, but during working hours, and the questionnaire did not take longer than 5 minutes to fill.

Interviewer bias had little chance of occurring because of the training and more importantly, the objective nature of the questions. All questions were closed ended and responses were one from a set of possible responses. However from a gender perspective, most interviewers were males, and the interactions with female providers (non physician categories) could have been influenced by social norms of how women (especially unqualified, uneducated – the largest number of female providers was here) and men are expected to interact and behave in this setting. The hierarchy of caste could have come into play in some parts of the province (given that

TBAs often come from a low caste), though I am not aware of any specific such instances.

A potential source of misclassification, particularly in this context could have occurred with regard to sector or employment (public or private) given that the distinction is blurred. Many public providers (in the morning) work as private providers in the evenings. This could have led to the problem of double counting as well. We resolved this as best as possible, by having the surveyors go out in the mornings, so that public providers would be counted only as public (regardless of whether they did private work in the evening). This would mean that the survey has under-enumerated private providers, as private providers here include only those with no government employment (and does not take into account those private providers also having public employment). Another reason for the potential under enumeration of private providers is that mobile providers (those who travel from village to village on different days of the week) were missed in the survey, as were unqualified providers in urban areas, who preferred to remain anonymous for fear of reprisal from the authorities.

With regard to private providers, private physicians in particular, they tend to have their own private out patient clinics and are attached part time to a number of hospitals to treat their inpatients. To avoid double counting in this situation, only full time providers in health institutions were enumerated. In the unusual situation of a provider having more than one solo practice, the provider was entered into the survey list, but re-entries were removed when the database was cleaned prior to digitization.

A weakness of the survey was that it did not collect detailed information on institutional providers. Only information on qualification and numbers were ascertained. Although only 25% of physicians and about 13% of paramedics fall into the category of institutional providers, details on these persons, particularly their gender are not available. This therefore restricted the detailed analysis of private providers in Paper IV to the 75% solo providers for whom detailed information was recorded.

We chose this method of survey as it was most pragmatic in the context – there was no prior information available (some sketchy information at best, though public sector employment is recorded by the State Dept. PH &FW), all providers could not have been contacted by telephone; mail surveys were likely to have poor response rates. The costs were reasonable in the context, and bias was minimized by having well trained interviewers, an objective questionnaire and meeting respondents only during working hours.

Pretesting and the research instrument: The research instrument (annexed on page 67), was designed in Hindi. It had 2 versions, one for solo providers and another for institutional providers. The instruments were pretested prior to the survey; the surveyors described their experiences in the field to the project team in Bhopal which included officials from the Dept. PH &FW. Surveyors' suggestions on modification of the instrument were considered. Minor changes in the questionnaire format, wording of questions (so that they were easily understandable by both the interviewer and the respondent), their order and content were made. The survey methodology guide was also prepared in Hindi after this pilot.

Sample for the survey: This survey aimed to cover the entire province and hence was not a sample, but the universe (with regard to the province).

To maximize validity, besides training (described under the methods section), multiple levels of rigid supervision were maintained. Concurrent supervision in the field was carried out by local supervisors. A random sample (10%) of schedules underwent two levels of manual scrutiny at the district level and then at the state capital. A repeat survey of 5% of villages was done by the project staff as a quality control measure, this allowed for confirming reliability as well. Besides, all villages with a population of more than 1000 were resurveyed (1000 villages). In addition, at the stage of data entry, the specialized data screen developed for data entry of all the schedules had built in methods to ensure data was correctly entered.

A shift from a provincial perspective to a district based perspective (Papers I, II, IV and V)

Paper I was concerned with the description of methodology. Paper II was a first level analysis at the level of the province as a whole. However the province is large and extremely diverse- socially, culturally, geographically and linguistically (as described on page 20). The unit within the province that lent itself most readily to analysis was the district. Since these are the major political and administrative units, they capture the diversity in the state to an extent, and secondary data is available for comparison purposes at this level. MP, at the time of the study was divided into 45 districts, each with a population of 1-1.5 million. Paper IV and paper V were analyzed at the level of the district.

Barriers of mistrust: (Paper III)

Trustworthiness in qualitative enquiry

Variations in qualitative enquiries have contributed to different perspectives on how qualitative research should be evaluated (Miles & Huberman, 1994; Patton, 2002; Tobin & Begley, 2004). The perspective emphasizing positivistic assumptions of a neutral researcher and objective world holds that qualitative research should be assessed using the same criteria as in quantitative research (Miles & Huberman, 1994). In contrast to this, other researchers argue that qualitative research relies on different assumptions than quantitative research, and a qualitative study is likely to lack validity if it judged using quantitative criteria (Creswell, 1998). The concept of trustworthiness, was developed by Lincoln and Guba (Lincoln & Guba, 1985) to fit the assumptions of qualitative enquiry, and was adopted across a range of disciplines. Trustworthiness contains three interlinked components of credibility, transferability and dependability which corresponds to the quantitative concepts of internal validity, generalizability and reliability, respectively. However researchers anchored in post modernistic thoughts argued that developing such parallel terms to validity were problematic, since the terms still relied on the positivistic assumptions of seeking objectivity and the one and only truth (Patton, 2002).

Instead attempts were made to deconstruct the established way of thinking about validity. For example, Kvale (Kvale, 1997), does not reject the concept of validity as such, but perceives it as a social construction that acquires meaning depending on the context, the audience and the researcher. 'Truth' of an interpretation, according to Kvale, is negotiated through continuous conversation and dialogue between the participants, the general community and the scientific community. It should be recognized here that the criteria of trustworthiness have changed and developed over the years in response to the criticism of trustworthiness as replicating rather than abandoning quantitative criteria for

validation. Lincoln and Guba, (Lincoln & Guba, 1986) introduced the concept of authenticity, which refers to how well research captures and describes a range of different realities.

In this work, I have employed the criteria of trustworthiness. In order to assess trustworthiness, I have used two main strategies suggested in the literature, namely reflexivity and triangulation (Creswell, 1998; Patton, 2002).

In the next section, I will describe the procedures of reflexivity and triangulations that were applied in this research by discussing practical and theoretical challenges and opportunities encountered during the field work.

Reflexivity

Reflexivity refers to how knowledge is shaped by the researcher and how this is accounted for in the research process (Angen, 2000). In qualitative enquiry, the researcher gets involved, and uses his or her interview skills, creativity and empathic ability to collect data in the field. The researcher as 'the instrument' calls for attention to biases, but biases become problematic only if the researcher is oblivious to them (Malterud, 2001). Here it is of critical importance that the qualitative researcher should clarify his/her position and reflect critically on it, rather than striving for objectivity and neutrality. Therefore, being aware of class, gender, race, ethnicity and how these factors shape the process of the research project is a fundamental principle in qualitative research (Angrosino & Mays de Perez, 2003).

Being an insider, someone from the context

By 'being an insider', I do not mean nationality, as people from one part of India are often 'outsiders' in another part of the country. So, despite being of the same nationality, I would have been an outsider in Madhya Pradesh, were it not for the 4 years that I worked in the province, prior to the study. I spoke the main language Hindi, with good fluency, which allowed for better interactions with the local people.

But what really contributed to my 'insider' status probably stemmed from the professional work I was doing at this time. I worked then, in a technical capacity, with an international donor program (Danida) which was designed to be a health sector support program and necessitated working closely with the provincial department of health. Besides it involved traveling extensively in the districts, meeting with district health staff, program managers, planning and conducting training programs, street theatre, coordinating with local NGOs in the districts, and interfacing with village self governments in the villages.

At a central level, my work involved frequent contacts and discussions (sometimes travels) with officials in the Dept. PH & FW, in connection with the ongoing development of the state health policy and the state drug policy. These two activities also involved building linkages with academia in the province. This created a common shared understanding of the setting, the constraints and strengths of the public sector, between the participants and me (many considered me an 'insider' to the workings of the health sector in the state, someone who knew the context and its constraints). Though I had worked with the participants in a professional capacity before (I did not know any in a personal capacity), I do not think that lowered the quality of information provided to me in the interviews – I believe the contrary.

The other advantage was that though I worked closely with the public sector, I wasn't really employed by the public sector; I was in the nongovernmental sector technically. However I noticed that both the public sector and private sector participants seemed to identify my sector of work with their own. I had worked with some public sector respondents in the Dept. PH &FW while the private sector respondents (most of whom I met for the first time) associated me with being from the donor project (and so nongovernmental). I think this particular position with regard to sector of employment, was an asset to the study, as it allowed better information to come through.

Being a female doctor

Another nurse researcher in the same province (Fochsen, 2007) has described the existing perspective of a gendered health professional hierarchy in the setting. With regard to gender, I think from my overall experience in the setting, there was a subtle (and sometimes not-so-subtle) way in which the establishment (the middle rungs of the department in particular) could be slightly patronizing, given that I was female (implying that I would have to go to greater lengths to convince, which became nearly an in-built adaptation on my part, with time). But this could also have been because of age, as I was relatively young, in a professional setting and a wider culture where age (and so experience) is a premium, and considered a merit.

Whatever disadvantage accrued from gender, I made up for partially, by the fact that I was a doctor of medicine. As most people, I interacted with in the Dept. PH &FW, were physicians themselves, there seemed to be a professional relationship that to an extent helped bridge the gender divide.

When doing the interviews, some elements of the same attitude perhaps came through. However, I think being female, and of a different age group also allowed me to come across as less threatening, and I often gained rich information. Being a doctor was advantageous, as I noticed that participants whom I was meeting for the first time, tended to pointedly ask me that question ('Are you a doctor?'), mid way during the interviews before they proceeded to expound some idea or experience. It was as if that confirmation was necessary as a reassurance that I would understand. It implied an underlying tacit assumption that such skills could be conferred by my profession).

Triangulation of methods, sources and perspectives

Triangulation of methods, sources and perspectives is regarded as a pivotal strategy in obtaining authenticity (Angen, 2000).

Triangulation of methods and sources involve comparing data from different methods, and comparing the perspectives of people from different points of view (Patton, 2002). Combining qualitative and quantitative data is one way of triangulating data. However this has not been used within this thesis, as the objectives of the qualitative study were not in anyway addressed by any of the quantitative studies. The findings of the qualitative study, on the barriers of mistrust that exist between the private and public sector have not been explicitly described before. There has been though, some suggestion of 'conflicting perceptions' (Vyas, Small, & DeRiemer, 2002) between the private and public sectors in a quantitative study focusing on TB in India.

The respondents were chosen to reflect the perceptions within their sector of work (public or private). There were fewer private than public sector participants. While this can result in some bias, in the context it is also true that few private providers work in potential policy influencing roles (as heads of bodies or professional organizations), most work as busy service providers. Policy making is assumed to be the role of the public sector.

I also recognize that restricting the study to those policy makers available in the province at the time and those who consented to participate could leave certain perspectives out of the study.

Malterud (Malterud, 2001) points out that ‘multiple researchers might strengthen the design of a study – not for the purpose of consensus or identical readings, but to supplement and contest each others statements’. The triangulation of researchers included different professions (medicine, nursing, and public health), genders, ages and cultural backgrounds (Indian and Swedish). While I was responsible for coding and categorization, the emerging categories and themes were frequently discussed in the research team, recognizing different perspectives and views. In addition, to the co-authors role to ‘supplement’ and ‘contest’ my findings, they were also engaged in the process of auditing to ensure that the analysis was logical and clearly documented (Creswell, 1998).

My close collaboration with my co-author (of Indian and Swedish background) who also worked in this setting, was characterized by frequent discussions on content after the interviews were transcribed, discussions on the flow of the interviews and possibly any changes in the flow that might be necessary in the next interview. In some ways this co-author was more of an insider than I was, having been born in the province and spent many years there.

My other co-author provided besides an outsider perspective, more methodological guidance, during the analysis phase, actively auditing and contesting my findings. The outsiders perspective is typically described as the researcher’s analytical explanations and descriptions, whereas the insider perspective represents the understanding and interpretations made by people within a culture (Bartunek & Louise, 1996).

The analysis of text

In this study, I did not face the challenge of translated text, as all the interviews were in English, though some respondents did switch spontaneously to Hindi, or quoted a local Hindi proverb to emphasize meaning. The parts in Hindi were transcribed as such. I had help with transcribing the texts, though I read through all transcripts while listening to the recordings to add in any missing words or sentences. I did the analysis of the texts myself, and that they were in some cases in two languages did not cause difficulty, as I was fluent in both.

Transferability and generalizability

There is a substantial difference between transferability in qualitative enquiry and the concept of statistical generalizability. Since the individual subjective meaning is central for qualitative inquiry, findings are not seen as facts that are applicable to a population at large but rather as analytical descriptions or theories that can be applied within a specified setting and can enhance our understanding of certain phenomenon (Patton, 2002; Sandelowski, 1986). From this perspective, the qualitative work in this thesis needs to be understood against the background of the study setting (described on page 20).

Purity of method:

A special mention in this regard is merited in connection with this paper. The method of study was individual in-depth interviews with consenting participants. However in the case of 3 participants, a group interview was held, as they wished this, given their engagements and the practicalities of their work and time. It could be argued that this was in some sense a focus group discussion. More important are the implications of this

change in methodology (that occurred unexpectedly, but which we decided to include in the study because of the information it contributed) on the findings of a study of this nature. Given that we were discussing policy and health sector constraints, and that there was a professional hierarchy between these three respondents, I acknowledge this could have influenced the views that the participants expressed in the presence of each other. It could have also determined how much the voice of each participant was heard in such a discussion.

An Ecological study: Paper V

An ecological or aggregate study uses groups of individuals as the unit of analysis. (Morgenstern, 1995). Such studies have been conducted by social scientists for more than a century and have been used extensively by epidemiologists in many research areas. In the application of paper IV and V the district populations form the groups. The variables used are the estimated proportions and densities recorded for each district. As there are 45 districts in MP the number of observations used in the ecological analysis is 45, sometimes restricted to 41.

Ecological fallacy: Correlations observed in ecological studies might or might not coincide with individual level correlations (Scwartz, 1994). This problem is normally referred to as the “*ecological fallacy*” (Selvin, 1991), (Kleinbaum, Kupper, & Morgenstern, 1982; Morgenstern, 1982). A classical example of ecological fallacy in epidemiological texts is Durkheim’s analysis of Suicide in Prussia (Durkheim, 1951). It was found that provinces with a greater proportion of Protestants had higher suicide rates than those with greater proportions of Catholics. While this conclusion may be true, the inference is not readily transferred to the individual level. The fact might still have been that Catholics living in predominantly Protestant provinces were taking their lives more frequently than those living in Catholic areas.

In paper V of this thesis, a similar situation exists, where use has been made of the district proportions of SC and ST groups. As the analyses have been done at district level, it is not directly justified to extrapolate the results to specific SC and ST groups. In this study, it was concluded that access to all categories of providers for districts with high proportions of scheduled castes is low. The hypothesis that individuals belonging to SC have lower access to providers could be tested also by looking at availability of providers specifically among SC and non SC groups.

The statistical analysis: The district provider densities are estimated as the number of providers divided by the number of persons for each district. Any statistical analysis of the estimated district densities like estimation of overall province density or estimation of correlations with background variables can be performed using weights or not using weights. Typically the weights are the numbers of persons in districts.

The technical rationale for using weights is generally that larger districts contribute more information than smaller. The estimated district densities are therefore more stable for larger districts. Assigning larger weights to larger districts decreases the standard error in province density estimates. In practice, the overall province density estimate, number of providers divided by number persons, would be a weighted mean of the estimated district densities with district population as weights. Weighting with the numbers of persons in districts is natural also from the point of view that every person contributing

to an estimate should be equally important. Not weighting means that we inflate the value of persons in small districts and deflate for those in large districts.

To study the correlations between the provider densities and the contextual variables we used weighted partial correlation coefficients. These are the correlations between a dependent and an independent variable defined with the restriction that a given set of other (independent) variables are fixed. The partial correlations are mathematically related to the (partial) regression coefficients in a multiple linear regression. The difference is that the partial correlation is a dimensionless number between -1 and +1. If, before the analysis, the variables in a multiple regression analysis are standardised i.e., the mean is subtracted from all values and the obtained differences are divided by the standard deviation, the partial regression coefficients and the partial correlations will be identical. In particular, the estimated p-values for partial regression coefficients and partial correlations coefficients will be identical in all cases.

The choice of (partial) correlation or regression coefficients follows from the purpose. The partial regression coefficients have dimensions given by the dimensions of the dependent and independent variables and can be interpreted as the average change in the dependent variable corresponding to unit change in the independent given all other independent variables are fixed. The dimension is the dimension of the dependent variable divided by the dimension of the independent variable. Thus, if the aim is to show how much the dependent variable changes corresponding to unit change in the independent, the choice is the regression coefficient. However, a basic question is if such quantification is meaningful. When the intention is to estimate the strength of the relation, the correlation coefficient provides a standardized measure without dimension between -1 and +1, which was more appropriate in this study.

The interpretation of regression coefficients would be e.g. 'that for every percent unit increase in proportion of scheduled caste population, there is a decrease in physician density by 0.1 per 100,000 assuming literacy, economy and infrastructure constant in the districts'. The aim of the study was not to quantify the change in the dependent variable (provider density) with unit change in the independent variable and it was more appropriate to use partial correlation coefficients to describe the statistical associations.

The precision of the estimates of regression, or correlation, coefficients depends critically on the variance-covariance structure of the independent variables. The ideal situation, possibly only obtainable in experimental studies, is when the independent variables are not correlated and have as large variances as possible. Deviations from this ideal situation are commonly encountered in observational studies. When the correlations between independent variables are substantial we talk about *collinearity* which causes variance inflation, meaning that the standard errors of regression and correlation, coefficients as well as the corresponding p-values are increased. The Variance Inflation Factor (VIF) can be used to measure this increase; it expresses the degree to which the collinearity degrades the precision of an estimate. The square root of the variance inflation factor tells one how much larger the standard error is, compared with what it would be if that variable were uncorrelated with the other independent variables in the equation. When one or more correlations between independent variables are very strong, close to -1 or +1 the whole system may become unstable and produce spurious results.

There are several ways to deal with collinearity when it is a problem. A common solution is to eliminate some variables from the model. In this study we investigated the two

highly correlated variables SC and ST proportions in two separate models. If it is difficult to decide on an appropriate variable to omit, the correlated independent variables can be combined into a reduced set of variables. One such approach would be to conduct an exploratory factor analysis of the data and use a number of factors as independent variables. Other, technically more complicated methods are also available to cope with collinearity.

Discussion of results

Mapping the private health sector: basic characteristics

Health care policy in most low and middle income countries (LMIC) has emphasized the development of state owned and financed health services. Since World War II, most newly independent nations adopted the recommendations of the WHO and other international bodies. The influence of ideas emanating from the erstwhile colonizing countries reconstructing after the war lead to the establishment of similar systems of peripheral clinics and health workers, integrated health centers, and a tiered system of public hospitals.

Through the last half century, most attention has focused on how to make public sector services work better. The intense scrutiny given to public sector financing and provision strategies persisted despite a steady flow of evidence that private health care supply was significant and growing rapidly in many countries (Baker & van der Gaag, 1993; Berman & Hanson, 1998; Berman & Rose, 1996). Typically private providers seemed to be an important source of care for ambulatory treatment of illness, which in LMIC constituted a large share of health spending (half of health expenditure in India). Although literature ascribes less importance to private providers for in patient care (Berman & Hanson, 1998), in India, the private sector is an important player in this area too (64% of hospital beds are private). This evidence, indicated that despite decades of public investment to assure public provision for basic services, private provision was significant and often dominant.

A striking indicator of lack of attention to the large private sector is the paucity of basic data available on private health care provision. Although the WHO publishes annual figures for physicians, paramedics and beds for most countries, there are no figures on the public and private components of this supply. Though there has been recent recognition for the state to enter partnerships with the private health sector, there is little empirical data available on the constitution of the private sector in most LMIC. While there has been some literature that reports cross country studies on private health sector composition (and associations with other variables), these have been riddled with limitations with regard to the quality of available data (Berman & Hanson, 1998). Other studies on the private sector have included small geographical areas the largest being Ujjain district in India (Deshpande et al., 2004) which was mapped by a survey, prior to this thesis work. Mapping of private providers has been difficult because of the blurred edges between the two sectors, and because of the large number of informal providers seen in a low income setting.

The papers in the thesis are the first to report a comprehensive mapping of the entire private health sector in a large province.

Berman and Hanson (Berman & Hanson, 1998) suggest that typology for a categorisation that accounts for the heterogeneity of the private health sector, will vary

by country. As this thesis was part of an undertaking to collect a basic description on all parts of the private health sector, we chose qualification as the categorization variable. While it was possible to use other categorization variables (institutional/individual, system of medicine, commercial orientation), we chose individual qualification as this was most relevant in the local context (the other categories were less distinct in this setting, with likely overlaps).

This thesis work was undertaken in the context of developing a health management information system and utilising maps for the same. However, as a thesis the focus of this research is the public and private health sectors; and not health information systems (though that is an important allied area) or geographic information systems (an upcoming area in India). Hence though these areas are referred to Paper I, for this thesis, the focus is more on the methodological aspects of this paper.

Urban and rural differences in health care provider availability

During the last decade, the population health status in India overall improved along with its dramatic economic development. In the last decade, IMR fell from 79 in 1991-92 (International Institute of Population Sciences, 1993) to 58 in 2005 (International Institute for Population Sciences & Macro International, 2007). However, a large disparity in rural and urban health status exists. Compared with urban residents, IMR in the rural population is over 1.5 times higher (62 vs. 42 per 1000) and institutional delivery occurs twice as often in urban areas (69% vs. 31%) (International Institute for Population Sciences & Macro International, 2007). Although many factors, particularly socioeconomic status, account for such a large gap, access to the health care system is pivotal. This includes access to health care providers.

Many factors influence the geographical variation that is observed in health worker density. Areas with teaching hospitals and a population that can afford to pay for health services invariably attract more health workers than regions without such facilities or financial support. As a result, health worker density is generally highest in urban centers where large teaching hospitals (public and private) and high incomes are most common. Although the extent of urbanization increases across countries with increasing income, in countries of all income levels the proportion of health professionals living in urban areas exceeds the proportion of the general population found there (World Health Organization, 2006). In MP, this difference is particularly stark, given that only 26% of the population is urban, yet 77.3% of qualified doctors practice here.

This was seen in both studies II and IV which studied provider distribution between rural and urban areas. What was interesting was to note that even though a large proportion of private physicians were in urban areas, even in rural areas there were still more private doctors than public ones. With regard to the category of private qualified non-doctors (paramedics), these were equally distributed in rural and urban areas, being nearly twice as many as public sector paramedics in both situations.

The public sector in India has tried to promote physicians serving in rural areas. A compulsory period of rural service for fresh medical graduates was introduced. Economic incentives for doctors appointed on contract were initiated under the Reproductive and Child Health Program. But the schemes have met with limited success because of the unwillingness of qualified doctors to take up rural placements. From the physicians' perspective, the reluctance is largely because of the lack of infrastructure, poor educational facilities, little opportunity for professional growth and social interaction, besides more lucrative opportunities in the urban private sector.

The original Bhore Committee Plan drawn up at India's independence was to have 6 doctors per 10,000 population, close to the WHO recommendation of 1 doctor per 1500 population. This would imply having 40000 doctors equitably distributed in the province. From the results of paper II, this represents a total short fall of 15000 doctors. Annually, between 800-1000 qualified doctors graduate in the province (Medical Council of India, 2004). Without discounting for exits from the health workforce or population growth, it would take 15 years to fill the current short fall in the province as a whole. With regard to rural areas, optimistically assuming a quarter of the 800-1000 graduating doctors every year might accept to stay and work in rural areas, it could take over a 100 years to make up the shortfall here.

In the medium term, given that the state has a responsibility towards ensuring access to health care for all citizens, one of the viable options could be collaboration with the private sector.

Private and public health care providers: collaboration or confrontation

While the case for collaboration with the private sector has existed in India (and other LMICs) for over a decade now, and has been encouraged by various international donors and the World Bank, there has been a general lack of collaboration between the two sectors in the Indian context.

It was postulated that in India, conflicting perceptions that exist within each sector regarding the other, could contribute to the low levels of collaboration. One of the reasons why public sector TB program managers saw little reason to collaborate with the private sector was that they believed that eventually patients would turn away from the exploitative and profit hungry private practitioners (Uplekar, Pathania, & Raviglione, 2001). Another Indian study in the area of TB illustrated significant conflicting views between the public and private health care sectors regarding how each sector perceived the other. These perceptions were likely to result in mistrust, differing views of reform propositions, conflicting mindsets about social agendas and an unwillingness to cooperate (Vyas et al., 2002). However there has been little exploration of the barrier of mistrust that exists between the two sectors.

In paper III, morality and value conflicts between the two sectors are evident. Public sector officials seemed judgmental of the private sector; making profits from health care was seen as morally wrong. A subtle disapproval of the ethics behind this motivation was apparent. There was a strong sense among the officials that the public sector occupied the moral high ground in this regard (being bereft of economic compulsions). This element of moral pronouncement was also evident in the perception that the public sector was the only available option to the poor (i.e. the private sector was not contributing to care of the poor), despite evidence to the contrary (D. Peters et al., 2002). It is also possible that this moralistic view is tinged with envy at the opportunity the private health sector have for economic well being. Formal earnings in the public sector are restricted to one's salary, whereas in the private sector, providers work on a fee-for-service basis.

The private sector also attempted to ascribe a higher moral value to their entrepreneurial work referring to it as 'a duty which was the government's', an elevation of their work from being a means of livelihood to a more lofty obligation.

The primacy of the economic imperative also came through with private sector participants expressing a willingness to collaborate in national programs if they were remunerated for the same. A subtle conflict existed for the private provider between wanting to contribute to the national well being and needing to earn a livelihood. The expression of 'having national feelings' but needing to cater to economic imperatives, voiced by a private sector respondent reflected this conflict.

Barriers of mistrust: While there are elements discussed above (morality and value conflicts) that contribute to mutual lack of confidence, there was also some expression of blatant mistrust between the sectors. The public sector openly mistrusted any private sector initiatives at charitable work, as the conviction of their (private sectors') profit motivation was very strong. The perception of the private sector was that the public sector was 'corrupt'. The accusation that it (public sector) was corrupting the profession, reflected a strong lack of trust in the public sector and hence, in its capacities for stewardship. While the basis for this accusation might be debated, it does indicate the presence of a deep mistrust. A number of global policy documents (World Bank, 1993; World Health Organization, 2000) have advocated a public sector role as regulator, monitor and overall steward of the entire health sector, but the possibility of playing a stewardship role is thwarted in an atmosphere vitiated by distrust. Good stewardship necessitates the ability to build coalitions of support from different groups (World Health Organization, 2000), a lack of trust between key actors is certainly not conducive to this task. Until these barriers can be worked through and weakened, the two sectors may be headed more along a course of 'subtle confrontation' rather than collaboration.

Market failures and political change mechanism

The efficiency and effectiveness of the private sector is subject to a complex set of market distortions and market imperfections, which interact with moral hazard problems of the market and information asymmetry. With its objective geared to maximize profits, the private sector generally fails to address cost minimizing concerns and lacks mechanisms to ensure adequate quality and access of care (Bhat, 1999). The existing payment method used for providing services, which is mostly out-of-pocket, creates perverse incentives and spurs an induced demand for services by providers.

A review of the private health sector in India suggests that growing costs, widening equity and access problems, and concerns about quality of care are emerging as major issues and are set to threaten the basic fabric of the health care system in India (Bhat, 1999).

The presence of a strong public health system is important to check many of these undesirable and unintended consequences of private sector growth. But with the weakening public sector and declining allocation of resources (Tulasidhar, 1993) over the years, and the inability of public systems to cope with the increasing demand for health care, the private sector has grown significantly. The gaps between the private and public sectors in terms of technology and skills and is bi-directional, with the private sector being at both ends of the spectrum delivering very high quality to extremely low quality of care.

The widespread growth of the private sector and the lack of effective mechanisms to address associated problems is making the health sector more and more vulnerable to market failure, which is surfacing as a concern. It is therefore important that the government and professional agencies play an important role in instituting processes and

mechanisms to ensure the provision of safe and appropriate health services from this sector.

One of the important grounds on which the private sector could be promoted is that of an efficient, equitable and quality conscious sector. The government has an important role in making this happen, by such means as regulation to ensure basic minimum standards of quality of care, setting up professional bodies to facilitate professional conduct, ensuring health costs are under control and system efficiency is maintained: and most importantly by facilitating the development of insurance mechanisms to protect the population from high financial burden.

Equity vs. efficiency:

However as stated above, the central issue that needs to be borne in mind is that the objective of collaboration must be primarily equity in access to quality care. The need for collaboration is premised on this. While efficiency is a strength with the private sector, equity has yet to be proven in collaborations with the private sector.

It has been argued that there is "evidence that effective partnerships (PPPs) can increase access, improve equity, and raise quality of health services" and that governments should "urgently engage with private stakeholders to. facilitate increased private sector participation" (Patouillard et al., 2007). However, the case that private sector interventions improve equity has not yet been clearly made. Moreover, one might fear that working with private for-profit providers may disproportionately benefit the wealthier members of the community who can afford their charges, and thus exacerbate inequity (Montagu, Prata, Campbell, Walsh, & Orero, 2005).

A recent paper has reviewed through an "equity lens" (Victora et al., 2003) the results of a systematic literature review of the ways of working with for-profit providers of health services and public health commodities to improve the utilization and quality of essential health services. The authors focused specifically on the extent to which these interventions had been demonstrated to improve quality and utilization for poor and disadvantaged groups. However, only a few studies have provided evidence on the impact of private sector interventions on quality and/or utilization of care by the poor. It was, however, evident that many interventions have worked successfully in poor communities and positive equity impacts can be inferred from interventions that work with types of providers predominantly used by poor people. The review concludes that better evidence of the equity impact (of interventions involving the private sector) is needed for more robust conclusions to be drawn.

Ethnicity and access

Scheduled castes and scheduled tribes are those communities that were historically subject to social disadvantage and exclusion. They are accorded special status by the Constitution of India (they are listed in a schedule) and are recipients of special social benefits as part of a national program of positive affirmation to overcome centuries of discrimination and isolation. The actual complete listing of castes and tribes was made via two orders in the Constitution of India (Constitution of India, 1950) in The Constitution (Scheduled Castes) Order, 1950, and The Constitution (Scheduled Tribes) Order, 1950 respectively.

The Constitution provides a framework with a three pronged strategy to improve the situation of SCs and STs.

1. Protective Arrangements - Such measures as are required to enforce equality, to provide punitive measures for transgressions, to eliminate established practices that perpetuate inequities, etc. A number of laws were enacted to operationalize the provisions in the Constitution.
2. Compensatory Discrimination - provide positive preferential treatment in allotment of jobs and access to higher education, as a means to accelerate the integration of the SCs and STs with mainstream society. Compensatory discrimination is also referred to as 'reservation'.
3. Development - Provide for resources and benefits to bridge the wide gap in socioeconomic condition between the SCs/STs and other communities.

To effectively implement the various safeguards built into the Constitution and other legislations, the Constitution of India, under Articles 338 and 338A, provides for two statutory commissions - the National Commission for Scheduled Castes, and the National Commission for Scheduled Tribes.

SCs/STs together comprise over 24% of India's population, with SC at over 16% and ST over 8% as per the 2001 Census (Office of the Registrar General & Census Commissioner, 2001).

In MP, 15.4% of the population belong to schedule castes which are distributed in all 45 districts, but more in the northern and central parts of the province. 75.5% of the SC residents of MP live in rural areas. Datia district in northern MP has the highest proportion of SCs (24.9% of the population) while Jhabua in the west of the province has the lowest proportion with 2.9%. Chamars (leather tanners) and Balahis (weavers) constitute the largest SC groups (62% of SCs) in the province.

MP has the highest ST population of all Indian provinces. 19.9% of MP's population belong to ST groups; most (93.6%) live in rural areas, along the southern and eastern forested districts of the province. Jhabua district has the largest proportion of ST (86.8%) while Bhind, Morena and Datia in the north have less than 0.5% of their population tribal. Bhils and Gonds are the largest tribal groups (constituting 60% of the tribal population).

The government of India has a formal commitment to providing more health workers in 'hilly and tribal areas'. There has been no previous study looking into the access for SCs and STs to health care providers (any type, any sector) previously. This has also been difficult as the populations are merged with the general population. In paper V of this thesis, a similar weakness exists, where use has been made of the district proportions of these groups. As the analysis has been done at the level of the district, it is difficult to extrapolate the results specifically to the groups. However the study does show that access to all categories of providers for districts with high proportions of scheduled castes is low, which is an important finding in itself (with political implications in the context). The hypothesis that therefore SCs have lower access to providers might be better proved by looking at providers specifically among SC and non SC groups (which are difficult to geographically delineate in this setting).

While the two groups have often been considered together in terms of being socially disadvantaged, paper V reveals a difference between the two groups (or their resident districts) with regard to access to health care. Our study shows that the densities of all categories of health care providers (across qualification and sector of work) were positively correlated with proportion of ST in a district while being negatively correlated

with the proportion of SC inhabitants. In MP, (and not necessarily in other provinces) a big difference between SC and ST is the distribution of these groups within the districts. Scheduled tribes form a high proportion of the population in some of the districts. The government has had a clear policy of providing this population (ST) with additional public health staff (Ministry of Health & Family Welfare Government of India) which is reflected in this study. This is also achievable practically given that the ST population in the state is aggregated together in districts and have their own political leaders whose priority is the needs of the majority ST groups. In comparison, the SC population forms a smaller proportion of total population in any district (not exceeding 25% in any district of MP), they are interspersed between other higher caste inhabitants and are economically linked to the latter.

In the Indian democracy, as part of the positive affirmation program, political representation is reserved for candidates from SC or ST groups in some electoral constituencies with a high proportion of these groups. This means that the while prospective candidates must belong to the specified reserved group; the entire electorate will participate in choosing among these candidates. Given that SCs are more scattered in the districts (compared to ST), political SC leaders in these districts also need to cater to other groups in the electorate (besides SCs) to ensure overall electability. This influences ('dilutes') the political power vested with the SC groups and hence, possibly their ability to lobby for better access to health care (providers for SCs). Our study revealed a negative correlation between all provider group densities (public and private) and proportion of scheduled caste populations in the districts.

This finding has policy implications for the province, in that SC and ST cannot be considered a homogeneous group with regard to interventions for bettering their access to health care. State affirmative policies for providing increased governmental manpower to tribal/hilly areas have worked in ST areas; however given the distribution of SCs in the districts of MP, a more focused, individual/ family based approach targeting this vulnerable group specifically is called for.

CONCLUSIONS & RECOMMENDATIONS

The papers in this thesis delineate the size and composition of the private health sector in one province of India: Madhya Pradesh.

While the thesis does not focus on the demand side of public or private health care services (i.e. utilization), it highlights the heterogeneity of the private health sector, and how the different provider groups are distributed in rural and urban areas and districts. Over 70% of all qualified health staff (physicians or paramedical staff) work in the private sector. Qualified physicians (public and private) and hospital beds were more numerous in urban areas. On the other hand, paramedical staff were more equitably distributed between rural and urban areas. Qualified private providers (doctors and paramedics) are more numerous than public ones not only in urban areas but also in rural ones. Most private providers (across categories) practice in solo practices, offering ambulatory care, an important component of care, given that nearly 50% of out-of-pocket health expenditure is incurred for these services.

Access to women providers is low because of their small numbers (only 12.9% of physicians and 3.4% of paramedical staff are women). This is even more pronounced in the less-urban districts. This could result in lower access for women for their own health needs, as women in these settings tend to prefer women providers. Provider density (in the public and private sectors) is negatively correlated with districts with a high proportion of scheduled castes, which may imply that this group could have less access to providers than the rest of the population, a finding with important political implications as discussed above.

There have been international recommendations (World Health Organization, 2000) for the public sector to play the role of oversight and to engage in public private partnerships (PPPs) for health. Over the years, the public sector has been presented with various policy options to encourage PPPs (Brugha & Zwi, 1998).

There is need in this setting, for a strong public sector to engage with the private health sector, as part of the state's responsibility to ensure health care for its citizens, premised on the need to ensure equity of access to quality health care for all population sub groups. However, despite the flourishing private health sector, there has been a general lack of collaboration between the two sectors (Uplekar et al., 2001; Vyas et al., 2002). This thesis highlights the blatant mutual mistrust that exists between the public and private health sectors. This mistrust in itself could impede any collaboration even if circumstances are otherwise ripe for the same.

Despite the global policy documents that have advocated a public sector role as regulator, monitor and overall steward of the entire health sector, the possibility of playing a stewardship role is thwarted in an atmosphere vitiated by distrust. Good stewardship necessitates the ability to build coalitions of support from different groups, a lack of trust between key actors is certainly not conducive to this task.

The barriers to trust between the public and private health sectors in the setting are quite complex and do not seem to have to do with a lack of knowledge or awareness of the other sector and its working. Rather there seem to be barriers related to power, morality, value conflicts, envy and the primacy of the economic imperative.

Recommendations:

Addressing these barriers as a step to making real collaboration possible, would call for deeper more structural changes in the working of the health system. Many of the elements (envy, morality, power, value conflicts) contributing to the atmosphere of mistrust are centered around the economic imperative – more specifically, the unbridled possibility to earn money in the private health sector. Besides vitiating the atmosphere and providing an unfair advantage to private providers, this predominant yet regressive out-of-pocket, fee-for-service payment mechanism for health care (Bhat, 1999; Mc Intyre, Thiede, Dahlgren, & Whitehead, 2006), places an unfair burden on citizens (especially weaker groups). This is all the more so in a setting like MP where 37.4% of the population lives below the poverty line, less than 2% are insured and where information asymmetry tends to be more extreme. To address this, the state must consider some form of health insurance for more vulnerable groups of people, at least for some services. Redressing the existing regressive payment mechanism most importantly would promote equity, reduce the financial burden on citizens, curb provider induced demand for services and standardize treatment. It will also rationalize the currently unregulated earnings of private providers and so clear the atmosphere between the two sectors to some extent.

The inequitable distribution of doctors between urban and rural areas, calls for innovative solutions to ensure access to qualified care for rural people. A focusing of public sector resources in more remote areas, while building PPPs in other areas could be considered. Regulating the location of new practices/hospitals may be an option in the medium to long term.

Demand side financing mechanisms for health care in such a setting, with a large private sector and a heterogeneous society (with vulnerable groups), need to be explored. The traditional mechanism of supply side financing has limitations in terms of efficiency and equity. Both allocative and technical inefficiencies are inherent. In Madhya Pradesh for example, 80% of the government health budget is dedicated to salaries (Government of Madhya Pradesh, 2006), leaving little towards other components of the health services. Also, the state being the monopolistic provider, limits choice for the citizens resulting in services of poor quality resulting in inefficiency.

There is presently a relative lack of capacity, experience and political will in the public sector to make the shift from a focus on service delivery to investing in a stewardship role over the entire sector. This argument for PPPs in the presence of a large vibrant private sector does not in any way imply a privatization of health care. On the contrary, it suggests a ‘de-privatization’, effectively giving the state more influence in directing private provider behavior to meet desired public ends.

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Appendix

District _____ block _____ village _____

Date _____

Provider ID	Name of provider	Ownership A: Gov. B: Non-gov.	Provider type*	Commercial orientation (A:for-profit B: not-for-profit)	Individual providers				Hospital / institution / group practice				
					Medical qualification***	Medical speciality (if any) ##	Sex	Medical system**	No. of full time doctors	No. of paramedics	Number of beds	Specialization of institution#	Medical system**

*Provider type (chose one)

- A. Practitioner general -outpatient
- B. Practitioner specialist - outpatient
- C. Government health centre/hospital
- D. Nursing home / polyclinic
- E. Mobile clinic / ambulance / home visit
- F. Dentist services
- G. Pharmacy/Drug shop
- H. Diagnostic facility
- I. Other (specify):

**Medical system (chose one)

- A. Allopathy
- B. Formal indigenous system (e.g. Ayurvedic, Unani, Homeopathy)
- C. Traditional
- D. Combination of modern and indigenous or traditional

*** medical qualification (chose one)

- A. Medical Bachelor & Bachelor of Surgery MBBS
- B. MD/ post graduate diploma eg. DGO
- C. Bachelor of Ayurvedic Medical Science
- D. Bachelor of Unani Medical Science
- E. Bachelor of Homeopathic Medical Science
- F. Registered Medical Practitioner
- G. Drug seller/compounder
- H. Nurse
- I. ANM
- J. Multipurpose worker (M)
- K. Trained TBA
- L. Trained JSR
- M. Lab technician/radiographer/ophthal asst.
- N. Other, specify:
- O. No formal medical qualification

medical specialty

- 1= Gynecology
- 2=Pediatrics
- 3= Surgery
- 4= Medicine
- 5=Anesthesia
- 6=other

Specialization of institution:

- A=General;
- B= Maternity;
- C= Children;
- D= Diagnostic;
- E= other

District _____ City _____ Ward _____
 Date _____

Provider ID	Name of provider	Ownership A: Gov. B: Non-gov.	Provider type*	Commercial orientation (A:for-profit B: not-for-profit)	Individual providers				Hospital / institution / group practice				
					Medical qualification***	Medical specialty (if any) ##	Sex	Medical system**	No. of full time doctors	No. of paramedics	Number of beds	Specialization of institution#	Medical system**

- *Provider type (chose one)
- A. Practitioner general -outpatient
 - B. Practitioner specialist - outpatient
 - C. Government health centre/hospital
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 - E. Mobile clinic / ambulance / home visit
 - F. Dentist services
 - G. Pharmacy/Drug shop
 - H. Diagnostic facility
 - I. Other (specify):

- **Medical system (chose one)
- A. Allopathy
 - B. Formal indigenous system (e.g. Ayurvedic, Unani, Homeopathy)
 - C. Traditional
 - D. Combination of modern and indigenous or traditional

- *** medical qualification (chose one)
- A. Medical Bachelor & Bachelor of Surgery MBBS
 - B. MD/ post graduate diploma eg. DGO
 - C. Bachelor of Ayurvedic Medical Science
 - D. Bachelor of Unani Medical Science
 - E. Bachelor of Homeopathic Medical Science
 - F. Registered Medical Practitioner
 - G. Drug seller/compounder
 - H. Nurse
 - I. ANM
 - J. Multipurpose worker (M)
 - K. Trained TBA
 - L. Trained JSR
 - M. Lab technician/radiographer/ophthal asst.
 - N. Other, specify:
 - O. No formal medical qualification

- ## medical specialty
- 1= Gynecology
 - 2=Pediatrics
 - 3= Surgery
 - 4= Medicine
 - 5=Anesthesia
 - 6=other
- # Specialization of institution:
- A=General;
 - B= Maternity;
 - C= Children;
 - D= Diagnostic;
 - E= other

- Definition: Paramedic: has been used in this thesis as meaning ‘related to medicine in an auxiliary capacity’. Interchangeably for qualified non doctors.
- Paper IV:
R2 read as ‘r’ (pg 4)
27.7 should read as 28.4 (pg 6, para 2, line2)
- Pg 7, line 3 ‘private institution’ should read ‘private institutional providers’
- Paper V
line 4, pg 4 – 76 should be read as 79
line 5, pg 7 – 0.615 should be read as 0.65
- Pg 1, para IV, line 5 – ‘and system efficiency is maintained’. (not in)
- Pg 17, para III, line 3 – ‘determinants that underlie these’ (not the)
- Pg 22, para I, line 1 – ‘health care system in MP’
- Pg 22, last line – ‘It was estimated’
- Pg 28-29, Quotation marks missing. Should read “Qualitative enquiry....tentative categories” (Fochsen, 2007, Pg 26)
- Pg 45, Insertion after the sub heading: Barriers of Mistrust (Paper III).
I have been inspired by the review of concepts in qualitative enquiry undertaken by Fochsen (Fochsen 2007).
- Pg 45 –46 , Quotation marks missing. Should read “Trustworthiness in Qualitative enquiry....Mays De Perez, 2003)” (Fochsen, 2007 Pg 40,41)
- Pg 47, second last line – Should read ‘Policy making’
- Pg 48, Quotation marks missing. Should read “Malterud.....Creswell, 1998)” (Fochsen 2007, Pg 43)
- Pg 48, Quotation marks missing. Should read “Transferability and generalizability.....setting)” (Fochsen 2007, Pg 44)
- Pg 52, para II, line 5 – Should read ‘referred to in paper I’
- Pg 53, para I, line 9-10 – Should read ‘make up the shortfall’
- Pg 54, para V, line 6 – Should read ‘skills are bidirectional’



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