

CHAPTER ONE

INTRODUCTION

'As a matter of justice, what do we owe each other to promote and protect health in a population and to assist people when they are ill or disabled?'

Norman Daniels, 2008

1.1. MOTIVATION

The Constitution of the World Health Organisation (WHO) defines health 'as a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity. If this idea is modified then health can be understood as normal functioning for our species (Daniels 2008). Health contributes to a person's basic capability to function and helps pursue the various goals in life that one has reason to value (Sen 1985). Health of the population is known to be significantly associated with social development and economic growth (see Barro and Sala-i-Martin 2004, Bloom et al 2004, Duraisamy and Mahal 2005). Such relevance of health in individual and social well-being makes it a 'special good' (merit good); one that should be fairly distributed in the society (Anand 2002). Health, however, is a state of being over which individuals can have only partial control. This is primarily because of its inextricable links to nature and society that are deeply influenced by social policies, economics, and political actions (WHO CSDH 2008, Peter and Evans 2001). All these factors leave an indelible imprint on health (Barker 1994), and as noted by the WHO Commission on Social Determinants of Health, such 'structural drivers' create unequal living conditions that are responsible for the fact that a majority of people in the world do not enjoy the good health that is biologically possible.

It is a well-known fact that the burden of health deprivations is disproportionately borne by certain identifiable sections of the society (see, among others, Black et al 1980, Whitehead 1992, Marmot 2004, Daniels et al. 2000, Wagstaff 2001). Recent research has witnessed ever-increasing engagement with this issue thus creating a huge body of academic literature that systematically documents socioeconomic inequalities in health in varying contexts. This increasing global evidence on health inequalities across various socioeconomic groups is among the major concerns of the

international development community - including the World Bank (WB), the World Health Organisation (WHO), the United Nations (UN) and other donor agencies - and has prompted many of the national and sub-national governments to incorporate reduction of health inequities¹ as one of the key policy objectives² (for example, National Rural Health Mission of India). As noted by Wagstaff (2001), such unprecedented attention to health inequalities provides an ever broader interpretation to the term poverty and attaches greater relevance to health in the domain of social justice and equity (Sen 1999, Alleyne et al. 2000). However, to proceed with their intent, these interventions require considerable information on the varied dimensions of health inequalities including insights on a variety of issues that affects health, healthcare access and delivery³. In this regard, quantitative estimates of the magnitude, direction, and rate of change of health inequalities can play a crucial role in creating and assessing policies aimed at eliminating the disproportionate burden of health deprivations among disadvantaged populations.

Given the moral and policy relevance of health, it is noteworthy that most of the policy documents overlook an elementary and significant concern pertaining to measurement of health inequalities (see, for example, mission document, NRHM 2005). These documents lay entire focus on conventional measures (such as population averages) which, without exception, are insensitive to distributional

¹ *Equity*, as defined by the International Society for Equity in Health (ISEqH), is: 'the absence of potentially remediable, systematic differences in one or more aspects of health across socially, economically, demographically, or geographically defined population groups or subgroups'. 'Where systematic differences in health are judged to be avoidable by reasonable action globally and within society they are, quite simply, unjust'. It is this that the Commission on Social Determinants of Health labels health inequity. It must be noted that *health inequality* is an empirical concept which gauges the differences in health outcomes between social groups defined by variables such as class, race, gender and geographical locations but has yet to be matched by an appreciation of the normative underpinnings of health equity (Anand et al. 2004).

² The 'Health for All' initiative of World Health Organization proclaimed in Alma Ata in 1978 had an implicit recognition of the importance of health inequalities but failed to sustain the momentum partly due to haphazard performance of countries and partly due to adverse economic conditions globally (WHO 1978, Gwatkin 2000).

³ For instance, before expanding the provision of reproductive and child health services it is essential to understand whether the current level of services are adequately utilised and whether there any non-supply barriers that discourage healthcare seeking. In this regard, the all-India report of the National Family Health Survey 2005-06 suggests that most of the women cite non-financial causes including restriction or unwillingness from husband or family as a major reason for non-institutional delivery as well as not receiving antenatal care during pregnancy (see IIPS and Macro International 2007).

concerns and neglects variation across and within population subgroups. There is considerable discounting of the possibility that progress toward specified health targets can be at the cost of widening gaps across income classes or other socioeconomic groups. Such prominent omissions is noted even among certain influential policy documents - such as the Millennium Development Goals - and straightaway leads to a set of considerations regarding the policies adopted for target accomplishment. In view of such intricacies, it is pertinent that policymakers and other stakeholders pay close attention to the measures on which they base their assessments of current and future health policies.

Much of these concerns, although, are shared by researchers, public health professionals and health activists, but the various perspectives and approaches adopted by these contributors provide a rather discrete view of the problem. Perhaps, this is one of the important causes of disconnect between policymaking and health research. Moreover, a general neglect in appropriate recording and sharing of vital health (and health-related) information has severely constrained policy research that can help to enhance effectiveness of various interventions. As a matter of fact, policies and programmes fail to recognise that absence of a well-defined methodological approach for timely and systematic assessment of health inequalities would make it rather difficult to steer policymaking. Clearly, concerted engagements in this area of research can help to develop comprehensive methods for interpreting and responding to health inequalities. This, largely, is the spirit motivating this study to advance appropriate measurement protocols for informed policy decisions and improved policy appraisals. It is expected that such study will elicit the key research concerns pertaining to measurement of health inequalities and the empirical illustrations will have some expository value while formulating social and economic policies to reduce health inequities.

1.2. THE PROBLEM

Most of the studies often use population averages and other summary measures to assess health inequalities but these indicators smoothen over a region's health performance and can offer misleading conclusions (Acheson 1998). For instance, two regions can have equal health status in terms of average performance, like percentage of medically supervised births, but it is plausible that its distribution across the population may not be similar (in one region institutional deliveries can

be concentrated among the richer sections of the population whereas in the other it can be equally distributed across the population). Such shortcomings of mean-centric measures have motivated researchers to incorporate distributional concerns for assessing health inequalities.

Measurement of health inequality has two fundamental objectives: one, to compare the distribution of health status of individuals within a well-defined socioeconomic group; and two, comparison of health distribution across different socioeconomic groups. The indicators of health inequality primarily differ in their normative underpinnings and attractiveness defined through certain desirable - axiomatic - properties. There are, nonetheless, subtle differences in the way these measures are applied. If the objective of the measurement exercise is to obtain a value-free description of the magnitude of health inequality then our exercise is analogous to measurement of income inequality and the applicability of income inequality indicators is immediate. However, this approach does not involve any stratification of the population and reflects the experience of each individual, irrespective of their socioeconomic status. Following Gakidou et al (2000), these 'value-free descriptions of variations in health status across individuals' could also be termed as 'pure health inequality'. As this technique does not consider socioeconomic identities in the measurement exercise, it has reduced efficacy in highlighting the associated causes of health inequalities. In other words, this approach steers clear of normative positions and, therefore, prevents one from approximating or assuming these health inequalities as health inequities. Clearly, interpretation of health inequality along socioeconomic identities makes a fundamental difference because it helps to comprehend the association of health inequalities socioeconomic factors and develops consensus for social and political action. These assessments acknowledge that there exists a significant association between the two distributions and that health inequalities mirror inequalities in socioeconomic status (Wilkinson 1996).

In this context, it must be noted that most of the available indicators of health inequality provide different estimates when we assess inequalities in terms of attainment and shortfall (Erreygers 2009a). To elaborate, attainment inequality concentrates on the achievements in a particular health space (for example, institutional delivery), while shortfall inequality focuses on what is lacking in that space (for example, non-institutional delivery). If we perceive that these are two different types of inequalities then their relationship in terms of estimates and

directionality may be allowed to vary. However, an attainment distribution can also be considered as the flip side of a shortfall distribution, and vice versa. For example, an infant mortality rate of 120 per thousand live births (shortfall or failure) can also be read as infant survival rate of 880 per thousand live births (attainment or success), given the rates are derived from the same distribution. Under such circumstances, it is difficult to detach measurement of attainment inequality and shortfall inequality or look at one independent of the other. Indeed, this alternative view reinforces the notion that inequality has a dual nature and, therefore, the estimates and directionality of health inequality in such cases should be systematically associated.

If the above argument is extended in the domain of socioeconomic rank related measures, it is easily discerned that the traditional Concentration Index, CI, (Wagstaff et al 1991, Kakwani et al 1997) would obtain different estimates and rankings if inequalities in health rather than inequalities in ill-health are considered (Clarke et al 2002). Apart from this issue, the traditional CI faces certain other key problems. To elaborate, it is noted that the bounds of the CI depends upon the mean of the health variable and, therefore, makes a comparison of populations with different mean health levels problematic (Wagstaff 2005). Also, value of the CI is to a large extent arbitrary if health variable in consideration is of a qualitative nature (Zheng 2006). In view of such issues, it is important that we present estimates of health inequality which is sensitive to such concerns and are based on robust measurement techniques. A related issue here is to examine whether the levels of health inequality respond to the level of the phenomenon or could be a consequence of the adopted social and economic policies.

A second problem in measurement is that most of the health inequality indicators adopt a standard 'individualistic' approach (inter-individual differences or individual-mean comparisons) to assess the distribution of health and, thereby, overlook the 'group' dimension (inter-group differences). Undeniably, health deprivations, in part are consequences of generalized deprivations in fairly basic requirements among certain disadvantaged groups and, therefore, attention needs to be drawn towards group assessments which hitherto have remained a neglected aspect of development (Stewart 2002). Group-based inequality assessments are important because these are politically salient and practical while deciding upon popular policy choices in a democratic setup. These two perspectives on health inequality, namely *individual* and *group*, could be conceptualized in the form of

vertical and *horizontal* inequalities, respectively. The review of existing literature suggests that the research on measurement of horizontal inequalities in health is relatively less developed as compared to its counterpart, vertical inequalities. As described by Majumdar & Subramanian (2001), group-inequality approach assumes significance because often,

'...personal destinies and identities are so intimately bound into group affiliations that the resulting patterns of social stratification that emerge are quite entirely lost to social analysis when [a] thoroughgoing individualistic approach to inequality assessment is adopted'.

Commonly, we observe that the measurement techniques such as simple differentials, rates and ratios are employed for comparisons and interpretations of inter-group differentials. These approaches, however, fail to integrate distributional concerns into a summary measure and instead resort to explanation exercises alone. The measurement of group inequality, therefore, can be enhanced by adjusting it for distributional inequalities. Furthermore, it is observed that health vulnerabilities arise in many forms and are concentrated across different sections of the population (classified by age, sex, income, education, place of residence etc.). Nevertheless, most of the available studies on group inequalities tend to organise groups along a single dimension with little appreciation of the fact that health disadvantages gets intensified manifold because of multiple vulnerabilities associated with an individual. For example, health failures can be much larger among a group of *backward caste females* who reside in *rural* areas. Such characteristics/identities are often significantly linked with deep horizontal inequalities and incorporation of such concerns into measurement exercise can help to unravel the depth of the problem (see Majumdar and Subramanian 2001).

It may as well be emphasised that understanding of the sources of inequality should be the first step to formulate health policies. An approach that emphasizes and identifies important social and economic dimensions of health inequalities can, invariably, offer insights for equity enhancing policies. This, in turn, warrants greater inputs from alternative methodological approaches to identify the structural factors that intensify health inequalities. This study identifies it as a critical problem and undertakes health inequality decomposition analysis to identify the structural factors that widen the health disparities between population groups and intensify health inequalities. Findings from such analysis can provide the much needed

pointers for socio-political and developmental discourse so that individuals/households can be equipped to escape the vicious combination of socioeconomic and health deprivations. Such an improved understanding of the complex social reality highlights the efficient means of health intervention and helps prioritising between them.

The final problem raised is concerned with health progress assessment and argues that it should be suggestive of the nuances involved in inter-temporal comparison. Commonly, we observe that the measurement techniques such as simple rate ratios ($A \div B$) and rate differences ($A - B$) are employed for comparisons and interpretations. Such chosen measures are indifferent to concerns pertaining to changing health inequality levels or the base-level of the indicator from where progress is assessed. Equity in health is usually recognized by policymakers and public health researchers to be an important policy objective. Also, there is a clear rationale that base-level differentials should have a bearing on progress evaluation. To elaborate, scholars have argued that while measuring progress, allowance should be made for the notion that (Paul, 1996 p.667) '*... an increase in the value of a physical indicator at a higher level represents a greater achievement than an equal increase in its value at [a] lower level.*' For example, it is rather difficult to increase life expectancy by one year if it is already at a higher level, say 80 years, compared to situation where the levels are much lower, say 50 years. Similarly, in case of health failures improvements could be relatively faster if the base-level are higher, say 120 infant deaths per 1000 live births, whereas it becomes increasingly difficult if base-levels are lower, say 30 infant deaths per 1000 live births. There are sufficient reasons to observe such differential reductions in health failures at different levels of the phenomenon. For example, a cost-effective intervention such as completeness of child immunisation can prove to be more effective in reducing the higher levels of infant mortalities whereas several other strategies, along with these basic interventions, would be required to reduce infant mortalities in similar proportions in countries with lower base-level. Given the dynamics of improvement at different base levels, it would be inappropriate to incorporate such concerns while undertaking progress evaluation. Such an improved progress assessment can help policymakers to identify achievements in a more realistic manner and thus develop a comprehensive vision regarding social and economic achievements.

In summary, the problem of the study could be reiterated in terms of the need and sheer urgency to engage with the task of assessing health inequalities particularly in a country where deprivation wears many faces and its burden is borne disproportionately by different groups. The findings of this study are expected to enhance the methodological and informational base for policymaking by improving health inequality assessment along pertinent socioeconomic dimensions. The methods and procedures adopted here can be pursued by various stakeholders to understand and reduce inequalities in the distribution of a 'special good' that has an intrinsic value to human life and is directly constitutive of human capabilities (Anand 2002, Sen 1985).

1.3. SCOPE OF THE STUDY

This study assumes importance for two fundamental reasons; one, for a comprehensive overview of health inequality measurement and; two, for empirical analysis of health inequalities in India with special reference to child health. Relevance of the first component is clear from the growing interest among researchers, policymakers and public health practitioners to understand health achievements. The methods discussed in this study would certainly help us to comprehend whether health inequality is higher or lower, or whether it has increased or decreased over time. An emphasis on horizontal inequalities could be asserted to be of greater relevance because of its usefulness in unravelling group deprivations. The alternative indicators discussed in this study thus prove to be immensely useful while assessing health performance and evaluating health policies.

The component of child health is one of the major concerns identified by policy makers, academicians and nations at large. Denial of health in a given society restricts the capability of the individual to flourish and function as an agent to pursue the various goals of life that she has reason to value (Sen 1985). These deprivations observed at individual, household as well as community level render unfavourable impact on the overall socioeconomic and human development of the country. In general, it also reveals the current health conditions among the population. In fact, health of children is a good indicator of health status of the future generation and reveals the overall social well-being in the country. These indicators are linked with various social determinants of health and help to describe

the status of healthcare utilisation both within and between different population subgroups. Government of India has been formulating policies to reduce the health deprivations among children belonging to various population groups but as a prerequisite these policies require substantive and systematic information on the magnitude and dimensions of health deprivations. In this regard, many studies have shown that deprivations in child health are associated with factors such as poverty, low or no maternal education and poor conditions of drinking water, sanitation and hygiene. But it is equally important to understand to what extent the distribution of deprivations in child health is related with the distribution of other forms of deprivation and how does it vary across region. The analysis presented in this study therefore can enrich our understanding of the problem and assume relevance in policy discourse.

The empirical illustrations on alternative measures of health inequalities focus on inequalities in childhood undernutrition in India⁴. As such, childhood undernutrition is a major public health issue widely prevalent in South Asia. India, being a major country of the region both in terms of geographical area as well as population, is no exception to this phenomenon where one in every two Indian children endures some form of nutritional deprivation (see IIPS and Macro International 2007).

Undernutrition⁵ is identified as both a health outcome and a risk-factor. It initiates a vicious cycle wherein it causes several other infectious diseases (including respiratory diseases) and further deteriorates nutritional health (Tomkins and

⁴ The empirical component of the study deliberately ignores the indicators of infant and child mortality; partly because of their reduced objectivity and partly because of limited sample size to undertake any meaningful exercise particularly while illustrating the theoretical concerns pertaining to horizontal inequities.

⁵ Most of the studies on the subject, however, do not distinguish between the terms *undernutrition* and *malnutrition*. Some studies use malnutrition when they are referring to energy inadequacy; still others use it to cover all types of nutritional deficiencies. Therefore, here it is important to present a minor clarification on the concept of undernutrition and malnutrition. Following Svedberg (2000), in this study we focus on *undernutrition* as it clearly represents an economic 'macro' issue related to food entitlement, poverty and socio-economic structure of the society. Malnutrition - though it may be caused due to certain socioeconomic deprivations - is considered as more of a 'technical' medical problem on which economists have little analytical competence (see Svedberg 2000). However, this (technical) difference by no means relegates the non-triviality of the issue at hand and the respective scholarly contributions in the area.

Watson, 1989). This vicious combination is identified as a major cause of child mortality in developing countries (see Svedberg, 2000). In fact, studies have noted that most of the deaths rampant among Indian children are caused by a combination of undernourishment and onslaught of infectious diseases⁶. Even in the new millennium, undernutrition persists as a major public health challenge for the country and has non-trivial implications for individual as well as for the society⁷. From a human right's perspective, it hampers the development of basic capabilities and functioning and disregards the child's right to lead a healthy life. Although, child welfare has been a prime item in the agenda of the Central and the State governments but the disquieting evidence on the burden of child health deprivations clearly points out the failures in protecting - what the Convention on Child Rights (CRC) identifies as - the basic right to survival, protection, participation and development⁸.

Given the relevance child health, both for policy and social justice, the pervasiveness of endowment-related health inequalities in India require a concerted engagement. It is important that such trends in a rapidly growing country are assessed, timely and systematically, not only to provide sincere inferences for policy but also to increase its importance in analytical and political spheres. However, at this juncture, it is important to clarify that the study is neither motivated and nor intends to analyse the effectiveness of certain ongoing child health interventions but, wherever possible, offers some conclusions on the policy matrix per se.

⁶ The undernutrition-infection complex has been well documented in the clinical literature, for instance see Tomkins and Watson (1989) for a comprehensive review of the interaction between nutrition and infection, with major emphasis on developing countries. It is estimated that poor nutritional health (underweight) accounts for more disability and loss of life than any other health risk, and is the underlying cause of half of all child deaths in the world (WHO 2002).

⁷ For instance, it is both clinically and empirically established that undernourished children are at high risks of morbidity and mortality and can also suffer from poor cognitive skills and intellectual achievement thus reducing their overall capability (Pelletier et al 1995, Pelletier & Frongillo 2003).

⁸ These all important rights are endorsed by the United Nations Commission on Human Rights through the Convention on the Rights of the Child (CRC). The Government of India has ratified the CRC in November 1989.

1.4. RESEARCH QUESTIONS

After a detailed survey of the literature, four specific research questions are advanced for systematic investigation;

- How inequalities in individual health distribution are best measured?
- Can the measurement of inter-group inequalities be improved by including alternative approaches from the economic literature?
- How to identify the key determinants whose unequal distribution in the society significantly increases health inequality?
- What procedures could be adopted to improve progress assessments so that it has bearing with the fundamental concerns of health inequality and base-level differentials?

1.5. RESEARCH OBJECTIVES

Based on the above research questions, the objectives of the study are listed as follows;

- To examine inter-individual inequalities in childhood undernutrition in India using alternative approaches and indicators of health inequality.
- To study the inter-group deprivations in childhood undernutrition in India and facilitate by comparison of inter-group inequalities 'adjusted' outcomes.
- To comprehend the sources of undernutrition inequality in India whose unequal distribution engenders undernutritional inequality
- To assess progress in child immunisation in India by using a method that is appreciative of the fundamental concerns pertaining to inequality and base-level differentials.

1.6. DATA SOURCES

This study uses the Indian National Family Health Survey (NFHS) data whose structure and format for information collection is similar to Demographic and Health Surveys (DHS). The NFHS surveys, initiated in the early 1990s, has evolved as a nationally important source of data on population, health, and nutrition for India and its states. NFHS-3 (2005-06), the third in the series of these national surveys, was preceded by NFHS-1 in 1992-93 and NFHS-2 in 1998-99. It is conducted under the supervision of the International Institute for Population Sciences (IIPS) and Macro International. For NFHS-3, approximately 124,000 ever-married women 15-49 years old were surveyed. For each state, a multi-stage, systematic, stratified sampling design was adopted, where the primary sampling units were selected systematically, with probability proportional to size. Households were then sampled using systematic sampling with equal probability, and all eligible women in each household were interviewed. National and state level sampling weights were created to reflect sampling design (see IIPS and Macro International 2007). Through NFHS-3, health and related information on 46,655 children (aged less than five years) could be analyzed. Anthropometric measures provided in the dataset are used to study childhood undernutrition in India. Being an illustrative exposition, the scope of the empirical findings is somewhat constrained due to excessive reliance on anthropometric indicators of child undernutrition. Nevertheless, the reason for proceeding with anthropometric based indicators is to facilitate convenient illustration of the alternative health inequality indicators. Further discussion on these measures is provided in the next chapter (see subsection 2.5.1). The NFHS-3 wealth index is used as a proxy for income primarily to designate an economic status rank to each sampled household. For convenience, this wealth index is provided along with the NFHS-3 dataset and is constructed using the principle component analysis on 33 assets and housing characteristics on which information was obtained (IIPS and Macro International, 2007). The use of an asset index to capture socioeconomic status has its shortcomings but in the absence of information on income or expenditure, the use of such an asset index is generally a good alternative to distinguish socioeconomic layers within a population. For accomplishment of the final objective of the study - to discuss progress in achievement or reduction in failures in childhood immunisation in India - we use data from NFHS 1992-93 and NFHS 2005-06. The empirical analysis undertaken in this study is performed with the help of STATA 10.0 software for statistical analysis.

1.7. CHAPTER SCHEME

- I. This study is organised in seven chapters. The introductory chapter states the background, motivation and problem of the study. These are followed by specific subsections on research questions, objectives and a brief discussion on data sources used for the empirical illustrations.
- II. Chapter two provides a comprehensive review of literature on health inequality and its measurement with special reference to the issue of childhood undernutrition in India. This review chapter is divided into five sections, each offering insights on the development of health inequality as a research agenda, conceptual distinction between health equity and equality and a brief discussion on causes of health inequalities. A major focus of this chapter is to review the existing measures of health inequality and to offer insights on suitability of alternative measurement technique for applications. The final section in this chapter is concerned with childhood undernutrition in India. It briefly discusses the major sources of data commonly employed to estimate the magnitude of childhood undernutrition in India. A review of some selected studies is also presented to understand the effectiveness of policy interventions (particularly, ICDS) on childhood undernutrition in India.
- III. Chapter three presents the estimates for inter-individual inequalities in childhood undernutrition in India. This chapter has a twofold objective; first, to examine the degree of pure health inequalities in the distribution of childhood undernutrition in India and its major states and; second, to discern the magnitude of socioeconomic rank related inequalities in the same. A major highlight of this chapter is the discussion on the association between average health attainment and socioeconomic rank related health inequality in India.
- IV. Chapter four unravels the magnitude of inter-group inequalities in childhood undernutrition in India and its regional dispersion. In this chapter, we adopt two key approaches to examine the inter-group differentials in childhood underweight. This approach conceives inequality as the deviation from an ideal situation, which says that the population subgroup share should be equal to the share in health

outcome vulnerability. From an analytical viewpoint, these subgroups are conceived in terms of aggregation of individuals with similar socio-economic status or any other grouping criterion. This chapter highlights the usefulness of graphical devices - the group profile of nutritional deprivation - in illustrating the stark inequalities in childhood undernutrition.

- V. Chapter five presents a source decomposition analysis to highlight its effectiveness by discussing the results in the light of our child nutritional policies. The findings provide the much needed pointers for socio-political and developmental discourse so that individuals/households are well equipped to escape the vicious combination of socioeconomic and nutritional deprivations. It further argues that an improved understanding of the complex social reality can highlight the efficient means of health intervention and help prioritising between them.
- VI. Chapter six proposes a method to assess progress which augments the principles of equity as well as base-level sensitivity. Such an improved measure could help the various stakeholders to identify achievements in a more realistic manner.
- VII. Chapter seven concludes with a brief summary of the study and discusses the major policy implications. Major limitations of the study as well issues for further research are also listed in this chapter.

1.8. CONCLUSION

This study draws its motivation from the felt need for rigorous research and analytical engagements to inform policymaking that seeks to enhance health equity. The research concern addressed seeks to develop a specific and comprehensive approach to understand the intensity of health inequalities and to further unravel the associated causes. The study hopes that inclusion of robust measurement techniques in health information systems can facilitate a timely and systematic assessment of health inequalities and can effectively guide policy actions. It is hoped that an improved understanding of health distribution can motivate efforts to develop right set of institutions to minimise toll on social welfare.