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Venkatanarayana Motkuri and Amir Ullah Khan[‡]

1. Introduction

The conventional wisdom informs us that economic growth is a precondition for improvements in the domain of human health. Research studies and reports especially that of the World Health Organisation (WHO) and the World Bank, during the last few decades have made a turnaround in this regards. They established the impact of health investments in poverty reduction and economic growth (see World Bank, 1993; WHO, 2001). The usual pathway is that better macroeconomic fundamentals such high economic growth and stability are conditions enhancing the resources available for social spending including health and improves living standards of people by generating employment opportunities and improved income that in turn improves the health conditions. Therefore, the two-way relationship established shows that human health condition affects the macroeconomic fundamentals and is affected by the macroeconomic policies and conditions / performance. It is very clear now that unless there is lead priority for investment in health, the vicious circle of poor health condition affecting economic development which in turn further depreciates the investment in health and health conditions of people continues.

In this backdrop, this chapter setting the health in the macroeconomic framework discusses how health is being neglected in the Indian state policy making where it has not been drawn required policy attention and priority in resource allocation. It also focuses on where health institutions failed, where policy went wrong and how adequate care was not taken in setting goals, identifying the solutions and monitoring progress. Inadequate policy attention towards sporadic interventions in pricing, health financing issues and the all important concern over the lack of trained health sector resources are a few of the major issues that define where India went wrong in tackling the health sector. There is a new **National Health Policy 2017**¹ (NHP 2017) in place now, concerned with such issues. The policy (NHP 2017) seeks to reach everyone in a comprehensive integrated way to move towards wellness and aims at achieving universal health coverage and delivering quality health care services to all at affordable cost². How far it will succeed avoiding the fate that earlier policies witnessed is to be evaluated. But the discussion in this chapter would point out the long standing issues and challenges with respect to health and healthcare sector in India.

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¹ The Union Cabinet led by the Prime Minister Shri Narendra Modi, has approved on 15/03/2017 the National Health Policy, 2017. The National Health Policy 2002 was the last policy preceding the current one.

² For details see Press Note at <http://pib.nic.in/newsite/PrintRelease.aspx?relid=159376>.

2. Macro Economy and Health: Impact of health on economic growth and vice versa

The conventional indicator of development, per capita income is, in fact, a manifestation of labour force participation rate, the sectoral composition or occupational distribution of workforce, and labour productivity in different sectors (Bhadhuri, 2006). Structural change along with a rise in productivity (of factors of production) is considered as critical for economic growth (Kaldor, 1957). Indeed, productivity of labour is critical for improving economic development at macro level as well as the living standard of a household at micro level. The labour productivity is influenced by the level of human capital that consisting of education and health. Growth studies have been observing significant contribution of human capital to economic growth (see Shultz, 1961; Becker, 1964, Dennison, 1967).

The report of the Commission on Macroeconomics and Health headed by Jeffrey Sachs and set up by the World Health Organisation (WHO) had addressed the impact of health investments in poverty reduction and economic growth (see WHO, 2001). In fact, in GDP growth discussions, it included the full income approach that adds life expectancy to the growth calculations. This approach combines growth in national income (GDP) with the value people place on increased life expectancy - that is, the value of their additional life years (VLYs). Global Health 2035 estimates that 24 per cent of the growth in full income in low- and middle- income countries between 2000 and 2011 resulted from health improvements. The influence of health on the national income (GDP) in general and per capita income in particular, is seen terms of *healthy workers are more productive* than comparable others who suffer from poor health. Better health also raises per capita incomes through saving and expenditure decisions³. It is observed that Foreign Direct Investment (FDI) is attracted to environments where labour is not vulnerable to heavy disease burdens. Hence, the initial health of a population is definitely a robust driver of economic growth. As Nordhaus (2002) has shown, in the United States of America (USA) half the growth in full income during the first half of the twentieth century had resulted from mortality declines, and slightly less than half in the second half. Real income in the USA went up six times and life expectancy went up by 25 years during this period. Clearly, the impact of health on GDP is substantial - an extra year of life expectancy is estimated to raise a country's per capita GDP by about 4 per cent, for example⁴.

On the other hand, better macroeconomic fundamentals such high economic growth and stability will enhance the resources available for social spending and improves living standards of people by generating employment opportunities and improved income that in turn improves the health conditions by facilitating the poor households to afford the same.

In this regard, the World Development Report (WDR) 1993 of the World Bank that examined gains from investing in health nearly 25 years ago, it had argued then that investing in health is one means of accelerating development (see World Bank, 1993). The WDR 1993 advocated then a threefold approach to health policy⁵. First, to foster an economic environment⁶. Second,

³ Retirement schemes and pension accounts raise large resources in countries with high life expectancy.

⁴ The intrinsic value of mortality changes, measured in terms of the value of a statistical life (VSL), is even more substantial.

⁵ It is meant for governments in developing countries and in the formerly socialist countries.

⁶ that will enable households to improve their own health. Policies for economic growth that ensure income gains for the poor are essential. So, too, is expanded investment in schooling, particularly for girls.

redirect government spending away from specialized care and toward such low-cost and highly effective activities⁷. Third, encourage greater diversity and competition in the provision of health services by decentralization⁸. These reforms could translate into longer, healthier, and more productive lives for people around the world, and especially for the poor. Similarly, the International Monetary Fund (IMF) in 2004, asserted the following. First, improving health outcomes is linked not only to the provision of health services, but also to interventions outside the health sector⁹. Second, achieving sharp declines in maternal mortality requires behavioral changes in prenatal care and delivery and an improved road network, in addition to improved hospital care. Third, delivering health services effectively requires the coordination of policies across a number of fields¹⁰. The European Commission¹¹ recently in 2013 stated that despite the improvement in average levels of health across the European Union (EU), the data is hiding major inequalities. It observed that poorer and disadvantaged people die younger and suffer more often from disability and disease. The Commission argued that investing in sustainable health systems combines innovative reforms aimed at improving cost-efficiency and reconciling fiscal consolidation targets with the continued provision of sufficient levels of public services.

3. Global Community and Health: Development Goals (MDGs and SDGs)

Not only policy makers of a specific country but also the concerned global community also committed to improve the living conditions of the poor in general and those in developing countries in particular. The concerns of global community in respect of deficits in the basic services in developing countries and among the poor resulted in preparing international development agenda for their betterment. In this regard United Nation (UN) had set up targets to achieve improvement in different aspect of human development in the form of Millennium Development Goals (MDGs) at the turn of the century. MDGs targets were set one-and-half decade period between the year 2000 and 2015. The UN evaluation report pointed out that although significant achievement have been made on many of the MDGs and targets worldwide, including that of the developing countries, the progress was uneven and many of the countries have missed achieving the targets (see UN, 2015b). Notwithstanding that, the committed global community to reach the most vulnerable, in continuum the post-2015 development agenda set more elaborated targets in the form of Sustainable Development Goals (SDGs). The agenda for the SDGs set 2030 as the terminal year. The UN, an international agency leading the agenda of SDGs, has been concerned with “leaving no one behind” in the development process.

The performance of India evaluated in respect of MDGs indicates that there are improvements but it could meet none of the targets in 2015 (see UN, 2015; GOI, 2015b). Of the total of eight MDGs, the goals four, five and six are directly connected to health. They are concerned with

⁷ Such as immunization, programs to combat micronutrient deficiencies, and control and treatment of infectious diseases. By adopting the packages of public health measures and essential clinical care described in the report, developing countries could reduce their burden of disease by 25 percent.

⁸ Particularly decentralizing government services, promoting competitive procurement practices, fostering greater involvement by non-governmental and other private organizations, and regulating insurance markets.

⁹ Access to clean water and education for mothers are both key determinants of infant and child mortality rates.

¹⁰ These include: public sector management policies that provide adequate incentives to health care providers; procurement and distribution policies for pharmaceuticals so that these are available in sufficient quantities in the right places; public health measures to protect the population; and suitable regulation and quality control of private providers, who often deliver more health services than public providers.

¹¹ The European Commission in its document on **Investing in Health**, February 2013.

child mortality (goal 4), maternal health (goal 5) and the combating diseases including HIV/AIDS (goal 6). The goal one ‘eradicating extreme poverty and hunger’ is related to the nutrition aspect of health. Despite the remarkable progress, there remain a considerable gap between the achievement and the target on the health and nutrition related indicators in India (*ibid*).

Of the total of seventeen SDGs, only one that is the goal three to ‘ensure healthy lives and promote well-being for all at all ages’, is directly connected to the health. But this goal is conceived in a more comprehensive form with respect to health.

4. Macro Economy: Performance of the Indian Economy and State Policy

This section examines the performance of the Indian economy including the macroeconomic parameters, GDP growth, foreign trade, financial markets, employment, poverty and inequality.

4.1 Macro scenario

Post-reform period especially in the second phase, Indian economy has emerged as one of the fastest growing economies in the world. According to the World Economic Forum’s latest valuation in 2017, of the ten biggest economies in the world, India is placed at seventh with \$2.1 trillion worth of its economy. But India holds mere 2.83 per cent share in the world economy against its more 17 per cent share in the world population. Consequently, one can find very low per capita income in the country when compared some of the south Asian and developed countries all over the world.

In its growth trajectory the Indian economy has moved away (up) from the dubious feature of the ‘hindu rate of growth’ (i.e. 3.5%) since 1980s and the rate of growth of Indian economy further accelerated to not less than 6 per cent (high growth trajectory) during the last two-and-half decades of post-reform period. Indian economy has waded through situation of poor agriculture growth with short supply food grains that unable to match with growth of population leading to sever food shortage / crisis in 1960s¹² resulted in importing foodgrains; adverse impact of subsequent multiple wars with neighbouring countries (Pakistan and China) in 1960s and 1970s; Oil crisis / shocks of 1970s¹³; the late 1980s’ balance of payment problems leading to economic crisis culminated in 1991¹⁴; and it could withstand the recent global financial crisis (2007) as well. The policy initiative of Green Revolution Technology (GRT) has leveled up the Indian economy and became self-sufficient in food grains and economic reforms implemented since 1991 had improved the economic growth in the country. Foreign trade, exports, stock markets have been flourishing; large foreign direct investments have been attracted, current

¹² The first sign of sever food shortage were observed in 1965. The food production went to an all time low in 1966 and immediately food grain imports from USA had rescued from otherwise a famine situation.

¹³ Unprecedented rise in international price of petrol owing to oil embargo proclaimed by Organization of Petroleum Exporting Countries (OPEC) in October 1973 (referred to as first oil shock) and followed by drastic reduction in oil output in 1979. India was one among the oil importing countries which were affected with such prices rise leading to inflation.

¹⁴ The currency devaluation and current account deficits leading balance of payment (BOP) problem had began since 1985 and culminated by the end of the decade and resulted in melting down of foreign exchange reserves below minimum level. Growing fiscal imbalances in the country were further precipitated by the steep rise in international oil prices owing to the Gulf War. Together, the country was virtually in economic and financial crisis in the mid-1991.

account deficit have been reached to manageable level and foreign exchange reserves are sufficient.

The trend rate of GDP growth in the last twenty-year period in India was more than 6 per cent per annum (see Dev, 2013; Dev *et al.*, 2013; Panda, 2013). The growth rate was touching even 9 per cent per annum between 2005-06 and 2007-08 (*ibid*). There were certain macroeconomic challenges such as high inflation, high current account deficit, depreciation of rupee, high fiscal deficit, decline in exports, and so on that confront the country (*ibid*). The prospects for continuing on such a high growth trajectory tended to be high. The recent Economic Survey indicates that the Indian economy has grown at not less than 6 per cent during last three years (GOI 2017b).

However, the recent slowdown in the light of Government of India's policy measures such as *Demonetisation* and Goods and Services Tax (GST) has become a cause of concern. Growth has slumped. The recent Economy Survey shows that the real GDP growth declined from 8 per cent in 2015-16 to 7.1 percent in 2016- 17 (GOI, 2017b). Further, the GDP growth slipped from 7.7 percent in the first half of 2016-17 to 6.5 percent in the second half. Projections for the financial year 2017-18 are volatile and uncertain ranging between 5 to 6 per cent. Job losses are mounting. Despite having a very low international market prices, fuel prices in India are growing. Exports have slowed down while imports are going up. Gold imports have gone up recently too. The government has been celebrating the rise in the stock market but now that has also started crashing down. The dollar is going back to nearly 65 *rupees*.

As mentioned above, one of the factors that are identified for accounting substantially the economic growth of a country is human capital (see Shultz, 1961; Becker, 1964; Dennison, 1967). The new growth theory brings into focus the contribution of total factor productivity involving the human capital in the growth accounting (see Romer, 1988). Empirical studies of growth accounting exercises across countries have been making efforts to estimate the total factor productivity (TFP). In this line of research, studies have established the impact of health investments in poverty reduction and economic growth (see World Bank, 1993; WHO, 2001). In India as well there are such studies estimating the TFP of the country's economic growth and observed its contribution (for instance see Bosworth, 2007). But there have not been much of research on the individual impact of health and / or education on economic growth, particularly the health. However, one can imagine the level of human capital accumulation there has been in India under such circumstances of illiteracy, poor educational levels along with high disease burden and prevalence of under-nourishment, and its impact on economic growth. Herein one can make a point that India has not reaped the potential contribution of human capital including health and education in its economic growth. It must be due to historical neglect of human capital components both the health and education in the large social and economic policy and underplayed the required measures for the same throughout the planning era. The policy focus for long time has been on investing in industry, irrigation, energy followed by resource allocations for short-run poverty alleviation programmes.

4.2 *Employment, Poverty and Inequality*

Strangely, despite the high growth trajectory that Indian economy has been witnessing, the growth of employment has been decelerating during the last two decades and hence considered as jobless growth (see Mehrotra *et al.*, 2014; Ghosh, 2012; Thomas, 2012; Himanshu, 2011). India's employment growth, had been slowing down since 2004-05. It was about 2 per cent per annum between 1999-2000 and 2004-05. It declined to around 0.7 per cent per annum between 2004-05 and 2009-10. Subsequently, it further slowed down to around 0.4 per cent per annum between 2009-10 and 2011-12 (Mehrotra *et al.*, 2014; Shaw 2013). As it was observed there was an absolute decline in size of employment in the rural agricultural sector. Such a decline was estimated to be about 200 lakh between 2004-05 and 2009-10 (Himanshu, 2011; Thomas, 2012). Further a decline of about 130 lakh during 2009-10 and 2011-12 (Mehrotra *et al.*, 2014).

The deceleration in growth of employment in general and declined size of employment in agriculture in particular during this period was due to a decline in female employment and shifting of male employment to non-farm sectors (Thomas, 2012; Abraham, 2013; Mehrotra *et al.*, 2014). In fact the structural transformation theory of Lewis indicates decline in agricultural employment and rise in non-agricultural employment¹⁵. Again, such a transformation especially the transition from agriculture to industry is to be accompanied by the withdrawal of women from the labour force (see Goldin, 1993). Most importantly such transformation is expected to result in formalizing the employment. But the structural transformation of workforce / labourforce that the country has witnessed is nowhere of that kind. The decline in size of employment in agriculture has not been replaced with the corresponding compensatory growth of employment in non-agriculture sector (industry and / or services). Moreover, large portion (more than 90%) of workforce in the country is engaged in unorganised and informal sector without any social protection / security measures (see NCEUS, 2009).

The growth of employment during the past few years further worsened and witness a negative growth meaning an absolute decline in employment during the period 2013-14 to 2015-16 (see Abraham, 2017). Such a trend is occurring for the first time in independent India. Moreover, it is worrisome to note that such a decline in size not only primary sector but also in secondary (Industry) particularly that in manufacturing and construction, and tertiary / services sector (*ibid*). Within the organized sector, along with a continuous sharp deceleration in IT / BPO the other sub-sectors witnessed the decline in size of employment (*ibid*).

In respect of reducing poverty the country seems to experienced remarkable decline in poverty ratio. But the methodological issues in poverty estimates leave one to wonder the performance of the country in this regard (see Subramanian, 2012&2014; Mishra, 2014). The Planning Commission of India estimates based on Lakadawala methodology shows that the poverty ratio in the country (rural and urban combined) was 54.93 per cent in 1973-74 and it declined to 27.5 per cent in 2004-05. Whereas the estimates based on methodology of Tendulkar Committee shows that it has declined from 45.3 per cent in 1993-94 to 21.9 per cent in 2011-12. Recently the Rangarajan Committee has estimated that it was 38.2 per cent in 2009-10 and 29.5 per cent in 2011-12 indicating a sharp decline during the two years (see Planning Commission). The

¹⁵ Such a change is due to productivity and wage differences between the two sectors (see Lewis, 1954).

latest poverty ratio estimate amounts to population living in poverty (i.e. below poverty line) in India is somewhere between 350 and 400 million.

Further, what is worrisome is growing inequalities. Oxfam's report¹⁶ shows that the gap between rich and poor all over the world in general is far greater now than before. Lucas Chancel and Thomas Piketty study¹⁷ observed that income inequality in India is at its highest level since 1922. The study observed that the increase in income inequality coincides with the sharp rise in Indian economic growth after 1980¹⁸. According to the International Monetary Fund (IMF) study estimates the inequality measure, *Gini* coefficient, rose from 45 to 51 between 1990 and 2013. The estimates based on consumption expenditure using National Sample Survey Office (NSSO) data of Consumer Expenditure Survey (CES) shows that the *Gini* coefficient has increased during the post-reform period (see Deaton and Dreze, 2002; Himanshu and Murgai, 2016; Himanshu, 2015). The study based on NSSO's All India Debt and Investment Survey (AIDIS) also indicates growing wealth inequality in India¹⁹ (see Anand and Thampi, 2016; Himanshu and Murgai, 2016). The *gini* coefficient based on NSSO-CES is usually observed to be an underestimate (Himanshu, 2015). It is so because the coverage of NSSO-CES is little limited as it is based on only consumption expenditure of the sample households surveyed but it does not cover the income and wealth of households and institutions.

4.3 State Policy and Course of Action: Performance in correcting mechanisms

The state policy in India has been inefficient and faltering on two important measures of redistributing mechanism such as taxation and social spending which are critical for reducing economic inequalities. The social sector spending is not only measure income redistribution mechanism it has greater role in influencing macro fundamentals as well where it enhances growth and macro stability. In the circumstances of high inequality, considerably significant level of poverty and as most of workforce engaged in unorganized and informal economy without any social security measures, the state policy of social spending on public services such as education, health and social protection are important. But the reality has been showing that these appropriable measures have not been used for the purpose. The performance of the country particularly in respect of the measure of social spending correction mechanism has been consistently poor. The Centre and the States' budget allocations show that they have been not only inadequate but also misallocated. In fact the recent ***Economy Survey*** admitted the fact that welfare spending in India suffers from misallocation (GOI, 2017b). As the Economic Survey

¹⁶ Titled as '*An economy for the 99 percent*', OXFAM.

¹⁷ Titled as ***Indian Income Inequality 1922-2014: From British Raj to Billionaire Raj***. The year 1922 was the time when Income Tax Act was passed and began levying income tax since then. The study has calculated inequality from tax data, national income accounts and sample surveys (see Chancel and Piketty, 2017).

¹⁸ The study observed that the top 1% of earners captured less than 21% of total income in the late 1930s, before dropping to 6% in the early 1980s and rising to 22% today. Over the 1951-1980 period, the bottom 50% group captured 28% of total growth and incomes of this group grew faster than the average, while the top 0.1% incomes decreased. Over the 1980-2014 period, the situation was reversed; the top 0.1% of earners captured a higher share of total growth than the bottom 50% (12% versus 11%), while the top 1% received a higher share of total growth than the middle 40% (29% vs. 23%) (see Chancel and Piketty, 2017).

¹⁹ Indeed the study observed that the rising levels of wealth inequality are deeply linked to the growth strategy being followed, by which the gains from growth have been redistributed among those who were already wealthy (see Anand and Thampi, 2016).

observed²⁰ that the expenditure on social services (both Centre and states) as a proportion of GDP was 7.0 per cent during 2016-17 while the education and health sectors accounting for 2.9 per cent and 1.4 per cent respectively. The average social sector spending in developed countries is to the tune of 14 per cent of their GDP (Goswami, 2013). The Economic Survey has made a point that India has not been sufficiently invested in human capital such as education and health (GOI, 2017b).

The fiscal policy of the Indian state especially that followed the initial phase of economic reforms initiated in early 1990s has compressed the social spending (see Dev, 2003; Joshi, 2006). In the second phase of reforms, the social spending has been marginally improved and resulted in implementation of scheme such as massive Mahatma Gandhi National Employment Guarantee Scheme (MGNREGS) and other welfare schemes. However, competing populism in state social policy has been denting on the social spending on productive investment that enhancing the human capital.

The governance structure in federal system of the country is such that most of social sector components such as education and health are ‘state subjects’. Central government can make policy and initiate the Centrally Sponsored Schemes (CSS) while making certain contribution of financial resources. State government are deciding factors in implementing the same while making their part of spending. One can observe the uneven progress and inter-state variation in respect of success in implementing country-wide massive schemes like public distribution system (PDS) and MGNREGS. Similarly, there are considerable variations across states in respect of implementing central schemes related to health and progress in the healthcare sector, achievement in health outcome. Two extreme cases illustrating it are Kerala and Bihar.

5. Human Health Conditions in India: Health Parameters and Policy Measures

The performance of India over a period in respect of many of the health parameters or indicators has in fact been improved but still lagging behind in terms of required outcomes. The twin dimensions of human health, morbidity and mortality rates in India are unacceptably high (Charan and Paramita, 2016). The most crucial parameter in health is life expectancy at birth²¹. It is an indicator that reflects the strength of the health system of a country throughout the lifecycle of a citizen or persons living in it. The life expectancy at birth in India as per the latest estimates is at nearly 68.78 years in 2016 it is one of the lowest in the world. Most of the developed countries including Japan have life expectancy more than 80 years. When compared to China (75.19 years) on this indicator India’s performance is lagging behind. It is to be noted that in 1960 with an average life expectancy of 43 years China’s position was in fact close to that of India but is has improved to a great extent during the last four-and-half decades while India has been lagging behind with a very slow progress in this regards.

²⁰ Based on the Reserve Bank of India (RBI) data related to public expenditure in India.

²¹ It is the average number of years a person is expected to survive if existing patterns of mortality stayed the same throughout their life.

5.1 Disease Burden

One of the disadvantages that the country has been witnessing in respect of human health is heavy disease burden. According to the very recent Global Burden of Disease Study²² (GBD) published in the medical journal *The Lancet*, India is ranked at dismal 154th among 195 countries on the healthcare index²³. In this study, India's performance is observed to be poor in tackling cases of tuberculosis, diabetes, chronic kidney diseases and rheumatic heart diseases. The study identified India one among the biggest underachievers in Asia in healthcare access. High disease burden brings it down the disability-adjusted life-years (DALYs) and healthy life expectancy (HALE).

Most of the developing countries including India have been witnessing double disease burden. Along with continuing prevalence of communicable and other infectious diseases, there is a growing burden of chronic and non-communicable diseases (NCDs) (Charan and Pramita, 2016). Although the epidemics and other fatal communicable and infectious diseases (plague, small pox, polio, cholera etc.) have been controlled owing to the advancements in medical technology and public health systems, still there are some old and new variants of communicable and infectious diseases (swine flu, anthrax etc.) surfacing. Some of the vector-borne (malaria, dengue, kala-azar chicken munnia etc.) and water-borne (cholera, diarrhoeal etc.) communicable diseases and threatening infectious diseases (Ebola, SARS, H1N1 influenza virus etc.) are still continue to be major challenge for the public health in India.

It is observed that while communicable diseases contribute to 24.4 per cent of the entire disease burden in India, over 75 per cent of communicable diseases are not part of existing national health programmes and universal coverage of these national health programmes covers only for less than 10 per cent of all mortalities and 15 per cent of all morbidities taking place in the country (Charan and Paramita, 2016). In respect of tuberculosis it is observed that though a significant decline is observed from the MDG baseline, India still contributes to 24 per cent of all global new case detection (*ibid*). The prevalence of HIV/AIDS has become another challenge for the disease control interventions and public health in India. Although intervention through various AIDS control programmes has brought down the prevalence rate in the general population over a period, it still left lakhs people living with HIV/AIDS (Charan and Paramita, 2016). According to UNAIDS data, in India there were about 21 lakh people living with HIV/AIDS of which 80 thousand new HIV infections indicating the continuing spread of the disease in the country (see UNAIDS, 2017).

Besides, many forms / variants of non-communicable diseases (NCDs such as heart and pulmonary diseases, cancer, diabetes, hypertension, rheumatism etc.) are wide spreading and some of them come close to become an epidemic. According to the WHO's Country Profile 2014 for India, the NCDs contribute to 60 per cent of the mortality in the country (see Charan and Paramita, 2016). According to a scientific study, cardiovascular diseases (CVD), including heart diseases and stroke, account for one-third of deaths throughout the world²⁴. India too

²² See various entries in *The Lancet*, Vol. 390, No. 10100, September 12, 2017.

²³ See at <https://thewire.in/137902/india-rank-healthcare-index/>

²⁴ That is Roth, Gregory; Christopher J. L. Murray and Mohsen Naghavi (2017). "Global and National Cardiovascular Disease Prevalence, Mortality, and Disability-Adjusted Life-Years for 10 Causes, 1990 to

experiences such high contribution, one-fourth of the total deaths in the country (see Charan and Paramita, 2016). Along with the high mortality and morbidity owing to major diseases, injuries (accidental or otherwise) also become fatal and result in disability and / or mortality if not timely attended.

In this regard it considered that India has been experiencing the '*triple burden of diseases*' - i.e. unfinished agenda of controlling age-old communicable diseases, emerging NCDs where some of which are due to changing lifestyles and emerging certain infectious diseases (GOI, 2015). Most of these diseases are preventable and lose of lives can be saved by avoiding mortality and morbidity due to such diseases. Prevention is the cost-effective strategy of public health. But the performance of the country in this regard is poor. The new health policy (NHP 2017) seeks to establish a system for regular tracking of disability adjusted life years (DALY) Index as a measure of burden of disease and trend in its major categories. How far the new health policy will succeed in controlling and minimising the disease is million dollar question given its wherewithal, inadequate resources and capacities.

It is prevalent in India that the general ailments are in fact under reported. The report of National Sample Survey Office's (NSSO) estimates based on its latest (71st) survey on health (2014) shows that about 9 per cent of rural population and 12 per cent of urban population reported ailment during a 15 day reference period. The reporting of ailment in the survey is not reflecting the intensity of the health problems prevalent in the country. When we consider the ailment prevalence based on reporting across states one can find that such a prevalence rate is higher in Kerala and lower in Bihar. The higher ailment prevalence rate in Kerala when compared to Bihar is due higher incidence of reporting due to growing awareness, education, and access and affordability to health care.

The epidemiological transition of disease burden in India indicates it is shifting from communicable, maternal, neo-natal and nutritional diseases (CMNNDs) to that of non-communicable diseases (NCDs) (see, ICMR/PHFI/IHMR, 2017, GOI, 2018). The increasing life expectancy at birth (LEB) along with a decline on the metric of Disability Adjusted Life Years (DALYs) over a period indicates the reduction in disease burden jeopardizing the potential and healthy human lives in India. Still such a disease burden (both the CMNNDs and NCDs) is very high when compared with any reference averages of the globe (see GOI, 2018). Along with such a high disease burden and the epidemiological transition has far reaching implications on the cost of health care. The shift is relatively less costly health care services attending the disease burden of CMNNDs nature to that of costlier NCDs (see, ICMR/PHFI/IHMR, 2017, GOI, 2018). The growth of pharmaceutical industry consisting of drugs and medical devices facilitated by balanced state policy regulating same are crucial in improving access and affordability to these drugs and devices.

2015", *Journal of the American College of Cardiology*, May. This new scientific study has examined problem of CVD in every country over the past 25 years. It observed that in 2015, there were more than 400 million individuals living with CVD and nearly 18 million CVD deaths worldwide (see Roth *et al.*, 2017).

5.2 Maternal and Child Health and Nutrition

Most important component of human health is maternal and child health. The performance of India over a period in this regard in fact has been improved but still lagging behind in terms of required outcome. According to the Sample Registration System (SRS) of India estimates, the infant mortality rate (IMR) in the country has come down from 57 (per 1000 live births) in 2006 to 34 in 2016, indicating remarkable decline of 23 infant deaths during the last 10 year period. The SRS estimate of under-five mortality rate in 2015 was 43 which is still at considerable level.

The maternal mortality is a fall out for lack of adequate health facilities attending for pre-natal and post-natal care. The recent World Bank estimate shows that the maternal mortality rate²⁵ (MMR) for India in 2015 is 174 whereas the MDG target for the same year was 109 indicating huge gap between target and achievement. Most of the mothers succumb to heavy blood loss²⁶ (i.e. post-partum haemorrhage). Although the trend indicates a significant decline over a period (MMR in the year 2000 was 374), the recent estimate of MMR is still very high wherein it shows about five women die every hour in India due to complications during childbirth. It amounts to nearly 45,000 deaths and accounts for 17 per cent of maternal deaths globally.

In the WHO's guidelines to reduce MMR in India an emphasis is placed on antenatal care. As of now, the most critical anti-natal care is yet to be universalized. The recent and fourth National Family Health Survey (NFHS-4) of 2015-16 estimates shows that mothers who had antenatal check-up in the first trimester in India was 58.6 per cent and mothers who had at least 4 antenatal care visits was further low at 51.2 per cent. It is staggering to note that the mothers who had full antenatal care in the country was very low at 21 per cent.

The country is still lagging behind in respect of institutional deliveries i.e. the percentage of live births where the mothers received medical attention at delivery either at Government hospitals or at Private hospitals. As per the SRS estimates only little more than one-third (34.9%) of live births in the country were attended by institutional skilled health personnel in 2006 and it increased to little more than three-fourths of live births (79.3%) by 2015. The NFHS-4 of 2015-16 as well indicates the same, the percentage of institutional deliveries in India was 78.9 per cent. Although it indicates a remarkable performance over a period, still more than one-fifths of child births are not attended by proper skilled health personnel and not taken place in the health institutions.

Malnutrition especially the under-nutrition is another sever problem in India. Under-nutrition is due to insufficient intake of energy and nutrients to meet an individual's needs to maintain good health. The World Health Organisation (WHO) says that when individuals are undernourished, they can no longer maintain natural bodily capacities, such as growth, resisting infections and recovering from disease, learning and physical work, and pregnancy and lactation in women. Such an malnourishment among children result in disorders such as stunting (sufficiently short of height to age), underweight (sufficiently short of weight to age) and wasting (dangerously

²⁵ The maternal mortality rate (MMR) is the number of mothers dying per 100,000 live births. Kaul, Rhythma (2017) "India's Maternal Mortality Rate on a Decline", *Hindustan Times*, May 27, 2017.

²⁶ The major cause is post-partum haemorrhage which is often defined as the loss of more than 500-1,000 ml of blood within the first 24 hours following childbirth.

thin). The recent National Family Health Survey (NFHS-4) of 2015-16 estimates shows that nearly 38.4 per cent of children below five years age (children under five) are stunted, 21 per cent of them are wasted, and 35.7 per cent of them are underweight. Anaemia is another form that reflects the problem of under-nutrition. In this regard, NFHS-4 of 2015-16 shows about 58.6 per cent of children aged 6 to 59 months are found to be anaemic. Such a problem of anaemia is prevalent among adults as well especially among women. The estimates of same NFHS shows that about 53 per cent of all women aged 15-49 years are found to be anaemic.

5.3 Sanitation, Hygiene and Drinking Water

One of the factors enriching the nutrition and matters for maternal and child health is sanitation, hygiene and drinking water. In this regard, UNICEF makes a point that access to safe water and sanitation is children's right not a privilege. Access to safe water and sanitation, and practices of hygiene is considered to be most cost-effective preventive strategy for controlling certain communicable and infectious diseases. The state policy initiatives such as Total Sanitation Campaign (TSC) and the recent *Swachh Bharat Abhiyan* (SBA) have been attempted for universalizing the sanitation but the country is lagging behind. Protected tap water for drinking is still remained as a mirage for millions of households in India. In respect of universalizing access to drinking water, the country's performance is falling behind. According to 2011 Census only 43.3 per cent of households in India were having access to tap water. But access to the tap water from any treated source was even lower at 32 per cent. In rural India the access to tap water (30.8%) and that to from treated source (17.9%) were further low.

As per the 2011 Census information only 48.9 per cent of households have latrine facility within the premises of the house. The recent National Family Health Survey (NFHS-4) of 2015-16 estimates also shows 48.4 per cent of households are using improved sanitation facility. In other words more than half of the households are deprived of such facility. According to Census 2011 on bathing facility, only 42 per cent of households in India have bathroom for the purpose. About 48.9 per cent of households in India have no drainage (open or closed) system. Rural areas bear the burden wherein the percentage of rural households in India having latrine (30.7%) and bathroom (25.4%) were very low and no drainage (63.2%) was very high. Herein the pointer is that although it seems to be largely lack of facility owing to affordability at household level and apathy of the state policy initiatives providing such basic facilities, but lacunae in required behavioural change and awareness is also to some extent affecting situation in India.

5.4 Health Infrastructure and Human Resources for Health

Along with hospital care, public health and emergency medical services (EMS) are critical for health care. The country has been inflicted with inadequate infrastructure required for health care in all these fronts. Public sector is nowhere matching the requirement and needs of the people in the country. Mounting pressure owing to growing demand on public health system without adequate infrastructure has been resulting in *healthcare tragedies* such as children's mass death in Uttar Pradesh²⁷ and that of female sterilization deaths (women) in Chhattisgarh²⁸.

²⁷ Referring to the recent tragedy of more than 85 children and newborns who died in Gorakhpur, Uttar Pradesh in August 2017. It was Gorakhpur's Baba Raghav Das (BRD) Medical College that witnessed the tragedy. Following that 49 babies died in a month at a government hospital in Farrukhabad in Uttar Pradesh. For details see at <http://www.livemint.com/Opinion/c92nu3gIscxEHmuA2BdlyH/Uttar-Pradeshs-child-death-crisis.html>

Private sector is first of all highly concentrated in urban areas (Towns and Cities) and the cost of healthcare in the private sector at an unaffordable level especially for the poor is a cause of concern. Together, the access to healthcare remained far from universalized coverage to healthcare. As we have seen above there have been deficiencies in institutional deliveries and maternal care. Similarly, the percent of deaths where medical attention received before death at health care institutions (either at Government or at Private hospitals) is very low. The SRS estimates shows only 28.1 per cent of the total death recorded in 2006 received medical attention and it increased 44.4 Per cent in 2015.

Rural Healthcare Facilities

Health care needs of people in rural areas are attended to some extent by unqualified and unlicensed private medical practitioners (PMPs) (see Narayana, 2004; Narayana, 2006). Under the Minimum Needs Programme (MNP) / Basic Minimum Services (BMS) programme, certain health facilities have to be established and maintained by the State, mostly the Provincial or State governments in a federal structure (GOI, 2015). As per the Indian Public Health Standards (IPHS), there should be one health sub-centre (HSC) facility for every 5000 population in plain areas and 3000 population in hilly areas. Similarly, there should be one primary health centre (PHC) for every 30000 (Plain) / 20000 (Hilly) population, one community health centre (CHC) for every 120000 (Plain) / 80000 (Hilly) population. When the rural population is estimated to be at 891.6 million in 2016, by the IPHS norms rural India needs a minimum of 1.78 lakh HSCs, around 30 thousand PHCs and more than seven thousand CHCs in serving the rural population of the country. If taken into account the norm referred for tribal areas along with the population in Census Towns, the requirement of health centres would be even more (see Table 1).

Table 1: An Estimate of Required number of Rural Health Centres in India, 2015

Sno	Details	HSCs	PHCs	CHCs
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
1	Norm* : Population per Centre (Plain / Hilly area)	5000/3000	30000/20000	120000/80000
2	Total Number of Rural Health Centres required for usual rural population (<i>a minimum</i>)	178322	29720	7430
3	Total Number of Rural Health Centres required for non-ST Rural & ST Rural population (<i>a medium</i>)	191740	31398	7849
4	Total Number of Rural Health Centres required for non-ST Rural, ST Rural population and Population of Census Towns (<i>a maximum</i>)	203925	66428	8357
5	Existing (actual) Centres (as on 31st March 2015)	153655	25308	5396
	<i>Minimum Shortage: Difference (2-5)</i>	24667	4412	2034
	<i>Medium Shortage: Difference (3-5)</i>	38085	6090	2453
	<i>Maximum Shortage: Difference (4-5)</i>	50270	8120	2961

Note: 1. *Indian Public Health Standards (IPHS); 2. Based on projected population (see Table 3).

Source: Authors' calculations; Also see Motkuri *et al.*, 2017.

and see at <https://www.ndtv.com/india-news/in-up-again-49-children-die-in-hospital-allegedly-due-to-oxygen-shortage-in-farukhabad-1745751>

²⁸ Referring to sterilisation deaths due to as a doctor performed tubectomy on 83 women in 90 minutes without proper care in the district government hospital in Chhattisgarh where 18 of these women had died because such careless action in February, 2017. For details see *FirstPost* at <http://www.firstpost.com/india/chhattisgarh-deaths-thanks-to-our-ministers-the-lives-of-women-continue-to-remain-cheap-3307762.html>

Against such requirement considered above, the *Rural Health Statistics* information related to existing number of centres, however, shows that there are 1.53 lakhs HSCs, twenty five thousand PHCs and little more than five thousand CHCs in India in 2015 (see GOI, 2015). When we compare the requirement as per the population norms of IPHS and the existing number of health centres in India, it indicates a considerable level of shortage in terms of availability of health facilities in rural areas.

Human resources for Healthcare Service: Severe Shortage

Inadequate availability of human resources for providing health care is most prevalent in the country. The WHO's standardized threshold indicates 4.45 skilled health professionals per 1000 population (see WHO, 2016). In this regards India needs about 5.9 million health professionals and workers given its population as 1326.8 million in 2016. As per the registration records information of concerned authorities, the total number of health professionals or workers registered in India is about 5.49 million²⁹ in 2016. It still indicates the **shortage of more than 0.4 million (or about 4.1 lakhs) health professional and workers** in the country. However, one has to note that the registration records based number of any category of health professionals or workers does not indicate that all they are alive and actively rendering their services in the Indian health care system, for different reasons such as mortality, migrations etc., (see Motkuri *et al.*, 2017; Motkuri and Naik, 2010; Rao *et al.*, 2016). It is an accumulated number over a period ever since the concerned authorities have been set up for the purpose. If we take note of the caveat mentioned above, the shortage would shoot up depending on the size (or proportion) of those who are not actively rendering their service among the registered health professionals and workers.

If we explore the Census of India information, some of the B series Tables of the Census of India provides number of workers by industrial classification as well as by classification of occupations³⁰. The Census 2011 data related to these *B Series Tables* is just released and we have information of Census 1991 and 2001³¹. The Census information on workers by industrial classification or occupational classification covers both the public and private sectors, it does not even differentiate workers between these sectors. One must however be cautious that the Census information on workers by industrial classification is that it is so comprehensive that it includes

²⁹ The Government of India's recent **National Health Profile 2017** report, one would find that India is having **one million total number of Doctors** possessing recognised medical qualifications (under Indian Medical Council Act 1956) and registered with any of the State Medical Councils in India and / or with Medical Council of India (as on 2016). Also about **0.2 million are the dental surgeons** registered with either any of the State Dental Councils or Dental Council of India (as on 2016). Besides, **0.8 millions are the number of doctors registered as AYUSH practitioners** in the country. In respect of the paramedics in India, the registered number of auxiliary nurse mid-wives (**ANMs**) in 2015 were **0.82 million**, number of **nurses and mid-wives were 1.9 million**, and the other female health assistants (i.e. **LHVs**) were **0.06 million**. Together, there were **5.49 million health professionals and workers** registered in India.

³⁰ Research studies such as Anand and Bärnighausen (2004), Anand and Far (2016) and Rao *et al.* (2011; 2013) have explored earlier the Census information in this respect.

³¹ While the Census 1991 had followed the National Industrial Classification of 1987 (NIC -87), the Census 2001 had followed that of 1998 (NIC -98) for classification of workers by the industry or activity that they engaged. In the **NIC-87**, the Group 930 of Division 93 in Section 9 and that in the **NIC-98**, Group 851 in Division 85 represents the activities related to human health. The activities in human health group is further categorised into five (930.1, 2, 3, 4 and 9) classes of workers in NIC-87 and three (8511, 8512, and 8519) classes of workers in NIC-98. And Census 2011 adopted the NIC-2009.

all the workers in the health care sector³². According to Census information the total number of workers engaged in the activities related to human healthcare (main and marginal category together) was nearly 1.89 million in 1991, it increased to 2.35 million in 2001 and further to 4.60 million in 2011. The population of India was 838.6 million in 1991, 1028.7 million in 2001 and 1210.9 million in 2011. If considered only the number of actual skilled health personnel such as doctors and nurses/midwives, it would be even lesser (see Rao *et al.*, 2016; Anand and Fan, 2016). Given the size of population in the country and WHO's threshold (of 4.45 health workers per 1000 population), it could have required nearly 3.73, 4.58 and 5.39 million skilled workforce for its healthcare services respectively for the years 1991, 2001 and 2011. It shows that even if we set aside the caveat on the Census information mentioned above, the obvious **shortage of skilled health professional and workers in 1991 was 1.85 million and it was 2.23 million in 2001 and 0.79 million in 2011**. It would shoot up if we take into account the caveat on Census information. Hence, certainly Indian health care system is suffering with shortage of human resources particularly the skilled health professionals and other workers.

The fundamentals of economic theory, principles and its laws in a market economy that work for the labour market as well, are applied here. The phenomenon of inadequate human resources particularly that of various cadres / categories of skilled personnel available in healthcare sector are in short of requirement it would drive up their wages / salaries. Due to imbalance between demand / requirement and supply and thereby augment the cost of health care as well. That would in turn enhance the financial burden for the state and household budget. Ultimately, it would result in unaffordable health care services for the poor. On the other hand, mounting pressure on short supplied human resources might result in tragedies mentioned above.

5.5 Expenditure on Health

The Government of India (including that of state Governments) spends around one per cent of its Gross Domestic product (GDP) on health, though some estimates put it to 2 per cent³³. The new health policy of 2017 wants to improve this to 2.5 per cent of GDP by 2020 while the global average is 6 per cent. As the last year's (2016-17) Economic Survey pointed out, the public spending on health was an unusually low at below one percent for a long time. It was 0.22 per cent of the GDP in 1950-51 and increased to little above one per cent in the recent past (see GOI, 2017b). As public expenditure on health has been very low, it has a corresponding burden / impact on private out-of-pocket expenditure. According to the WHO, based on its estimates³⁴ for the year 2014, that corroborated with National Health Accounts (NHA) the private health expenditure in India form to more than 3 per cent of the country's GDP showing it is thrice that of public expenditure. It also indicates that private per capita expenditure on health is thrice that of public expenditure. Together, both the private and public expenditure on health forms less than 5 per cent of GDP. Although the share of Government expenditure on health as a

³² Along with skilled health care professionals (allopathy), paramedics and the other workers, practitioners of various forms Indian Medicine, it also consists of laboratory technicians, pharmacists, even the unqualified private medical practitioners who have been predominant in rural areas, and other personnel of administration and management in health care institutes (i.e. hospitals etc).

³³ <http://economictimes.indiatimes.com/industry/healthcare/biotech/healthcare/indias-disproportionately-tiny-health-budget-a-national-security-concern/articleshow/49603121.cms>

³⁴ Based on the WHO's Global Health Expenditure Database. The WHO has maintained the database for the past ten years. It provides internationally comparable numbers on national health expenditures.

per cent of total expenditure on health increased, it is still very low. As the estimates for the year 2014-15 have shown of the total expenditure on health combining both private and public, the out-of-pocket expenditure accounts for more than three-fifths of it and the government expenditure contributes little above one-fourth of it (see Table 1).

Table 2: Expenditure on Health in India - National Health Accounts

Sno	Details	2004-05	2014-15
1	Total Health Expenditure (THE) as a % of GDP	4.2	3.9
2	Per Capita THE (Rs.)	1201	3826
3	% of Government Health Expr. in THE (% of Government in GDP)	22.5 (0.95)	29.0 (1.1)
4	% of Private (Out-of-Pocket) Health Expr. in THE	69.4	62.6
5	% of Other Stakeholders health Expr. in THE	8.1	8.4

Notes: THE – Total Health Expenditure includes current and capital as well both public and private including out-of-pocket expenditure; 1. Other Stakeholder are: Insurance companies, external or donor funding, and social security expenditure.

Source: National Health Accounts 2014-15, Government of India.

Such a high private (out-of-pocket) expenditure has been a burden and denting the household budgets especially that of the poor due to lack public health facilities and insufficient public spending on health. Insurance market in general and that of health insurance in particular is not that prevalent in India. The NSSO's health survey report shows that as high as 86 per cent of rural population and 82 per cent of urban population in India was not covered under any scheme of health expenditure support (NSSO, 2016). It is scanty although some of the southern states have come up with innovative health insurance schemes successfully implementing it, particularly two Telugu states (Andhra Pradesh and Telangana) have been implementing **Rajiv Arogyasri Scheme** (referred to as RAS) covering up to Rs. 20000 worth hospital care expenses per year for poor families³⁵ (below poverty line). At the national level RSBY is an important scheme in this line.

In response to felt need to improve the access to and utilization of health care services particularly in developing countries and among the poor there emerged the concept of Demand Side Financing (DSF) (see Gupta *et al.*, 2010). When financial barrier in terms of cost health care including transportation and transaction costs, causes the lack of access to and lower utilization health care services, the DSF is observed to be address those barriers. It is observed that although the concept has certain merits and advantages, its long-term sustainability is a cause of concern (*ibid*). It has been implemented certain countries and regions largely with donor funds on which a country or region cannot depend on for long (*ibid*).

The policy experts must understand the full income approach and the argument that health investments impact on economic growth. The lives saved, productivity gained, infections averted and morbidity reduced enables very high returns on investment. India so far followed a policy of investing in major dams, roads and industry. Health and education suffered and hence illiteracy and poor health outcomes and low life expectancy prevailed. Health expenditure otherwise viewed in terms of consumption needs to be considered as investment. Health required re-viewed as a sector that enables fast paced growth through decreased mortality,

³⁵ For details See as <http://www.aarogyasri.telangana.gov.in/aarogyasri-scheme>

higher life expectancy and increased productivity. The estimates of CIH indicate that India would need to invest an average of about 24 billion dollars annually over the next 20 years. It suggests that roughly half of India's health investments will need to be targeted towards health system strengthening to develop a health sector capable of scaling up priority interventions. It is considered that as India's health system becomes stronger, more investments should then be targeted towards programmatic scale-up. The largest investments in India would be for maternal and newborn health, malaria, and child health. These health areas would require an average annual investment of \$2.2 billion, \$2.6 billion, and \$2 billion, respectively, annually for the next twenty years.

5.6 Drug Policy, Prices and Out-of-Pocket Expenditure

Drug prices have strong impact on both the public and private out-of-pocket expenditure. As the India's National Health Accounts of 2014-15 have shown more than one-fourth (29%) of total health expenditure (private and public together) is spent on pharmacies / medicines. A large part of the out-patient medical expenses are associated with medicines. As observed in the NSSO report, out of the total private medical expenditure, around 72 per cent in rural and 68 per cent in urban areas was made for purchasing 'medicine' for non-hospitalised treatment (NSSO, 2016).

One of the problems in healthcare sector is high prices of drugs / medicine and prescribing high valued non-generic medicine. Besides, there has been a growing concern about spurious / counterfeit / substandard drugs. In this regard, India however lacks a comprehensive drug regulatory mechanism. Such concerns are expressed by the Supreme Court of India, the National Human Rights Commission and the Members of Parliament. All they suggested for improving the drug regulatory system in the country (GOI, 2003).

The Mashelkar Committee in this regard noted that although the Drugs and Cosmetics Act³⁶ 1947 has been in force for the past 56 years, the level of enforcement in many States has been far from satisfactory (see GOI, 2003). The Committee had observed that idea of setting up of National Drug Authority (NDA) as suggested in Hathi Committee report (1975) and it was reiterated in Drug Policy (1986 and 1994) has not been implemented (*ibid*). The drugs price control orders issued from time to time and need since 1962 have been at centre of debate since then. The recent Drug Price Control Order (DPCO) of 2013 involved with issues of not only the span of control (i.e. list of drugs under price control) but also the method of price fixing (see Motkuri and Mishra, 2018). Instead of the drugs (APIs – Active Pharmaceutical Ingredients), the *formulations* are considered for price control in this new order (DPCO 2013). Also, the method of price fixation changed from cost-based price (CBP) which was in practice since 1979 to market-based price (MBP). When it was observed that the prices of certain drugs fixed based on MBP were higher than average market price or the alternative procurement prices paid by

³⁶ The first Drugs Act 1940 was enacted in British India is a central legislation for the present Drugs and Cosmetics Act 1940. The Drugs Act was enacted in pursuance of the recommendations of Chopra Committee which was constituted in 1930 the British Government of India. The Act was to regulate the import, manufacture, distribution and sale of drugs and cosmetics in the country. The main objective of the Act is to ensure that the drugs available to the people are safe and efficacious and conform to prescribed quality standards and the cosmetics marketed are safe for use. Following that The Drugs Rules were promulgated in December 1945 and the enforcement of these Rules had begun in 1947. The first Drugs Act 1940 and following Rules had been amended several times. The Drugs & Cosmetics Act covers a wide variety of therapeutic substances, diagnostics and medical devices (see GOI, 2003).

different organization, the Supreme Court of India had to intervene and lamented the concerned authorities to take appropriate action in this regard (*ibid*). Along with drugs the prices of medical devices such as coronary stents and knee implants drawn the policy attention.

In sectors such as healthcare, innovation is key to the reduction of drug prices. New compositions, molecules and formulations are by and large more effective and less expensive and therefore are tools used to universalise healthcare. For the poor, high drug prices, which constitute a major share of out of pocket expenses, are often be seriously debilitating. As the demand for healthcare increases, the pressure on Universal Healthcare provision requires cheaper and far more easily available drugs. Towards this end, country ought to be working towards providing the best incentive to pharmaceutical research by way of encouraging higher outlays in research and development, particularly for neglected diseases. Medicines, their molecules and formulations are patented by drug companies that invest large sums of money in research and development. These investments sometimes go up to 100 million dollars. Therefore drug manufacturers claim patents, disallowing others from making the same drug. The patent law gives inventors twenty years of absolute ownership after which any other manufacturer can produce the same drug and sell. It has been observed that countries with strong access to medicines have a strong intellectual property (IP) regime and vice-versa. Intellectual Property Rights are granted to protect and incentivise innovation.

It is indeed important for any policy that looks at health outcomes and also to look at how overall expenditure on health care increases. Investment in health care, increase in expenditure on healthcare, and on public health has a significant impact on the improvement of health outcomes. What is interesting is that with the exception of North America, the countries that rely on compulsory licenses are all those that have very low budgets for health. There are also countries that suffer from large fiscal deficits and that is why their usual inclination is to pressurise drug firms into either reducing drug prices, or by intimidating them through the use of compulsory licenses. Most of these countries also use severe drug price controls to curb prices. The drugs and pharma sector is almost always particularly vulnerable. Drug prices are so easy to clamp down upon given the emotion and ideological basis that abounds. There is nothing that stops the state from bringing drugs under bulk procurement. This is how costs can be cut and one can meet large requirements as well as address private sector sustainability issues. Tamil Nadu's success with procurement and inventory management is indeed a great example.³⁷ If one arbitrarily cuts costs and mandatory issues compulsory licenses then one is actually striking at the root of innovation.

When it comes to provision of medicines and medical devices, the private sector's role is irrefutable but needs to be properly regulated. There are many other ways in which the cost of medicines and equipment can come down. The bottom line is that you cannot proceed in providing universal healthcare without providing good healthcare infrastructure, and larger public investments in health. All that it may not possible without letting the private sector play a stronger role in provision of drugs and vaccines.

³⁷ Sharma, S., and R. R. Chaudhury (2015). "Improving availability and accessibility of medicines: a tool for increasing healthcare coverage". *Archives of Medicine*.

6. Conclusions

In this chapter, while setting the health in the macroeconomic framework discussion is carried out how health is being neglected in the Indian state policy making where it has not been drawn required policy attention and priority. Herein one can make a point that India economy could not realise the beneficial effect of better health conditions in its economic growth and development process due to poor health outcomes. On the other hand, its improved performance in economic growth particularly in the post-reform period has not been lead to prioritising the investment in human capital in general and that of healthcare in particular. As a result, as observed, the health outcomes in the country are still far from the required and universal health coverage remained a mirage.

As mentioned above the policy experts must understand the full income approach and the argument that health investments impact on economic growth. Health and education have been suffered in respect of investment priority of the state and hence illiteracy and poor health outcomes and low life expectancy prevailed. Health expenditure otherwise viewed in terms of consumption needs to be considered as investment. Health required re-viewed as a sector that enables fast paced growth through decreased mortality, higher life expectancy and increased productivity. Critical factor is that it requires a commitment for enhancing the required financial resources for improving the healthcare sector in India.

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