Increasing Private Sector's Healthcare Expenditure in India: An Empirical Test

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ABSTRACT

This study analyzes the trends in private healthcare expenditure in India from 2013 to 2023, using a quantitative approach based on linear regression analysis of national financial data. Over this period, private healthcare spending rose from \$77 billion to \$119 billion, with an average yearly increase of \$3.65 billion. The strong positive correlation (r = 0.894) and statistically significant p-value (0.0002) confirm a robust upward trend in private healthcare expenditure. These findings highlight the increasing role of private sector spending in India's healthcare landscape, influenced by rising incomes, urbanization, health emergencies, and expanding access to advanced medical technologies. The study underscores the urgent need for policy interventions to regulate cost escalation and equitable healthcare promote financing, integrating both private and public sector contributions. It paves the way for further research into regional disparities, insurance healthcare affordability, impacts, and providing support valuable insights to balanced, sustainable health system development in India.

Keywords: Private healthcare expenditure, India healthcare spending, Health expenditure trends

I INTRODUCTION

Healthcare spending in India is an important aspect of the general development in the country in the economic growth, as well as the priorities of the welfare of the people. The last several decades have been characterised with tremendous changes in the healthcare landscape in India, in terms of both public and private healthcare services steadily growing. Nevertheless, although total health spending is the proportion of healthcare increasing, expenditure in relation to gross domestic

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product (GDP) in India is still relatively low relative to the situation in other emerging economies, which casts some concerns about the sufficiency of healthcare spending to address the needs of a growing and more diverse population (Chatterjee & Bhattacharyya, 2023).

The healthcare expenditure framework in India involves the expenditure in healthcare by the central and state governments and the expenditure by households which is a significant portion of out-of-pocket payments and private health insurance. The role of the private sector in the healthcare sector is quite significant as it provides over 70% of outpatient care and a large part of inpatient care, which is why it is essential in serving the population (Rao et al., 2022). This monopoly of the private sector can be explained by such factors as accessibility, quality difference perception, and incomplete infrastructure in state healthcare.

Although this expenditure has gained greater significance, out-of-pocket expenses which are usually because of a rise in healthcare expenditure by the private sector usually leads to worsening of the health inequities through the increased burden on the lower-income groups (Singh & Kumar, 2022). In turn, the determinants and trends of the spending in the healthcare sector in the private sector are important in developing the policies that will enhance the efficiency, equity, and financial protection of the healthcare system in India.

India contextualization of healthcare spending therefore does not only assume the measurement of spending but also the evaluation of structure, sectoral contribution, and socioeconomic effects to guide the models of sustainable financing of healthcare (Mehta and Gupta, 2022). These aspects are especially important to address in the framework of epidemiological changes, the increase in the number of non-communicable illnesses, and demographic changes that require more investment in healthcare.

This proposed research is expected to examine the pattern and tendencies of the growth of the private healthcare spending in India between the years 2013 and 2022 using the quantitative statistical technique, which is the linear regression analysis. The research will attempt to measure the mean household growth in terms of spending in the private healthcare sector on a yearly basis and evaluate the statistical significance of the trend. It is also aimed at exploring the consequences of increasing the spending of the private sector relative to the spending on healthcare by the government and the effects on healthcare affordability, access and equity amongst various demographic and economic groups in India. In addition, the research will give evidence-based suggestions that can be used to guide healthcare policy making and financing measures to ensure that the growth of the sector is balanced with achievement of fair public health outcomes.

Private investments in India

Apollo Hospitals, and the University of Leicester have established the Centre for Digital Health and Precision Medicine in Chittoor, Andhra Pradesh. This initiative seeks to transform healthcare by advancing research and education in digital health, precision medicine, and specialized healthcare programs.

Iswarya Hospital launched in Chennai with twelve-story building features 14 operational rooms and 72 clinical service departments. It is equipped with AI-powered CT and MRI machines, a catheterization lab, advanced surgical interventions, and specialized therapies in cardiology, orthopedics, and neurology.

Tata Group has partnered with the Indian Institute of Science (IISc) to establish Tata

IISc Medical School at the institute's Bengaluru campus and will contribute Rs. 500 crore (US\$ 57.6 million) to support it.

The Indian medical devices sector has witnessed remarkable growth in recent years and is expected to reach Rs. 4,34,350 crore (US\$ 50 billion) by FY31 driven by increasing demand for quality healthcare, advancements in technology, and favourable government policies. Start-ups in this sector have been instrumental in fostering innovation, improving accessibility, and reducing costs.

In 2022, DNA Wellness announced a Rs. 200 crore (US\$ 23.98 million) investment to establish over 100 cervical cancer screening labs across India by 2027. They have exclusive rights to the CERViSure DNA Ploidy Test, a quick and non-invasive cancer detection method. The first lab opened in Ahmedabad, with more planned in Vadodara, Rajkot, and Surat by October 2022. This initiative aims to improve access to cervical cancer screening, addressing the significant health burden of approximately 130,000 new cases and 80,000 deaths annually in India.

Apollo 24|7 has merged with Keimed in a Rs. 2,475 crore (US\$ 296 million) deal, with Advent International acquiring a 12.1% stake in the new entity valued at Rs. 22,481 crore (US\$ 2.69 billion). Apollo Hospitals will maintain a majority stake of at least 59.2%. DocPlix, a health-tech startup, raises Rs 1.2 crore (US\$ 0.14 million) in a bridge round led by Inflection Point Ventures (IPV), aiming to digitize health records for India's 1.4 billion population and enhance healthcare accessibility.

IIT Bombay partners with Blockchain for Impact (BFI) to receive a US\$ 900,000 investment aimed at developing affordable healthcare technologies, as part of a broader US\$ 15 million BFI-Biome initiative to address urgent health challenges and advance biomedical innovation. In May 2022, Temasek, a Singaporean investment company, invested US\$ 2 billion in Manipal Health Enterprises, a leading healthcare provider in

India, highlighting the growing interest in the Asian healthcare market.

In September 2022, Nirma a diversified Indian conglomerate, acquired a 75% stake in Glenmark Life Sciences, a pharmaceutical for US\$ 689 million. company, transaction marked one of the biggest Indian healthcare M&A deals of the year. As of August 1, 2022, a total of 24.33 crore Ayushman cards have been created. To prevent, detect, and deter healthcare fraud and to ensure that eligible beneficiaries receive adequate treatment, the Government of India is using Artificial Intelligence (AI) and Machine Learning (ML). As of October 2022, a total of 26 crore Ayushman cards have been created. As of February 20, 2022, more than 220.63 crore COVID-19 vaccine doses have been administered across the country. While as of May 11, 2022, more than 2.20 billion COVID-19 vaccine doses have been administered across the country.

II LITERATURE REVIEW

Mudar (2003) describes how policies of liberalisation in the government such as subsidies and tax breaks led to the rapid development of privately owned hospitals in urban India. Such growth was mainly uncontrolled and resulted in disjointed healthcare deliverying. The private sector has most influential become the provider especially in towns though the access to rural areas was poor. The growth was fueled by both the corporate and small scale providers. This formed a dual system where quality and accessibility were different. The research was forecasting the challenges in regulation and fair healthcare provision in the future.

Sengupta (2005) explored the topic of booming private healthcare in the context of low state expenditures (0.9% of GDP) and reported that the sector dominated in curative services and acute care. The study identified strong urban-rural inequalities, corporatization, and increasing out-of-pocket expenses. It focused on the incoherent growth, which affected service equity. The role of the private sector in the control of preventable

diseases was recognised though with quality concerns. Major findings were policy gaps on regulation and financing. This prepared more serious socio-economic health criticisms.

Hooda (2015) gave a comprehensive report on the analysis of the private healthcare enterprises in India stating that there are more than a million private enterprise, mainly located in the urban areas. The article outlined diversification as after 1990s whereby there was an increase in diagnostics and allopathic practise. It observed the trends of workers and ownership towards corporatization. Inequalities between rural and regional areas continued to exist. The results highlighted implications regulating policy of integrating the use of the private services in the context of the public health objectives. The research requested empowerment of rural health facilities.

Sarunisha (2020) offered a detailed analysis of behaviour of the private healthcare and the role of the government. Emphasising the low regulatory ability of government, the study proposed the following collaboration models, namely, contracting and resource sharing to improve service delivery. It talked about the preeminence of the privatisation of curative care but brought up ethical and governance issues. The focus was put on enhancing the access and financial security of vulnerable groups. The study provided a context to existing discussions about the issue of privatisation versus Indian public health equity. Accountability policy reforms were called.

Some of the key problems as established by Selvaraj and Karan (2012) include low level of public investment in health and high out of pocket expenditure, where the major financier of healthcare is the private sector. The paper postulated that the low coverage and inefficiencies existed even with schemes developed to provide financial risk protection. Inequality and poverty used to bring about financial risk and poverty because it was disproportional to poor families. Their work pointed at the necessity of system reforms to

better the state spending and control the spending of the private entities. The study established a ground on the discussion of universal health coverage in India. It was focused on narrowing the public-private finance gaps.

According to Patil (2019), there were catastrophic healthcare costs as a result of disproportionately high cost of the private sector. The paper concentrated on the household economic distress due to out of pocket payments. It was observed that there were regional inequalities to the disadvantage of poorer states. It emphasised the necessity to widen health insurance cover and government expenditure to lower the private expenditure levels. It was noted that the research also indicated socio-economic disparities that affected healthcare access. The targeted subsidies and insurance penetration were the preferred policies.

Rao et al. (2022) have associated growing private healthcare spending with flourishing medical tourism and technological growth. Their work expounded that the innovations of the private sector and investments in infrastructures drew more spending. Although it had a good economic effect, affordability and equal access remained an issue. They emphasised the urgent need of policy frameworks between growth and social equity. The research proposed enhancing insurance system and quality control. It found the private sector as a source of opportunity and challenge.

Kumar et al. (2015) pointed out the predominantly facilitative and not regulatory role of the Indian state in the healthcare sector regarding the private sector. Systemic flaws in applying standards and accountability were exposed in their study. They suggested that this regulatory loophole made it possible to distort the market and to compromise quality. The paper emphasised on strengthening the capacity of states and implementing allinclusive legal frameworks. This suggested to have collaborative governance with the private providers to achieve better outcomes. The research has put emphasis on the issue of governance as a vital element in the development of the health sector.

Sarunisha (2020) has identified challenges with the government capacity to control the work of the private healthcare. The study proposed partnership models, including the disease surveillance joint ventures and nonclinical service contracting, feasible as solutions. It highlighted the prevailing role of the private providers in the curative care as it stated the role of the government in safety and quality. The article encouraged more access and financial safeguarding of the underserved groups. Among the major themes were ethical governance and transparency. It demanded a moderate balance between the state and the business.

Hunter (2022) discussed the piecemeal regulation of private healthcare with a decentred approach. The research found various players other than the government such as accreditation bodies, insurance companies and consumer courts which shape the regulation results. It claimed that this ecosystem caused incomplete, unequal standards, which affect fairness and quality of care. Their results implied that there was a need to have integrated governance structures that acknowledge such diverse roles. The study indicated the intricacy of the governance of the health sector in the market scenario. It suggested policy formulates that innovative in order to improve regulation effectiveness.

Mehta and Gupta (2022) summarised the existing empirical studies about determinants and effects of private healthcare spending and noted research gaps. They noted lack of knowledge about the drivers of expenditure, performance, and health outcomes. The article region-specific, also demanded more socioeconomic, and insurance penetration-Policymakers specific studies. were encouraged to make strategies on sound data opposed to speculations. The paper emphasised the alignment of privately spending on overall health system objectives.

It focused on evidence based policy to cover universal health coverage.

The author conducted a study on the role of actors in the Indian health policy in the private sector, discussing their growing impact on the models of agenda-setting and service delivery (Sriram, 2022). The review identified opportunities of innovation as well as threats of inequities in the market. It emphasised the need to balance between the dynamism of the private sector and effective regulatory systems. Transparency, accountability, and the inclusion of marginalised groups in the policymaking were the recommendations of the paper. It highlighted how the sector can help in a positive change when it is governed appropriately. The study pointed at changing health governance issues.

Strong growth in the private sector in the long term in hospitals, insurance, and digital health was projected by NITI Aayog (2021) and can be an indication of investment potential. The report has emphasised the need to have both conducive and restraining regulatory conditions to realise sector potential. The scope of telemedicine and technology intake was identified as a key growth force. The report highlighted the twofold requirement of creating innovative culture an affordability. It encouraged both public-private cooperation in coverage expansion. Policy suggestions were made on integration, quality, and equitable access.

Private Spending

Year	Private Spending (\$B)
2013	77
2014	79
2015	82
2016	86
2017	87
2018	87
2019	84

Year	Private Spending (\$B)
2020	89
2021	106
2022	108
2022	119

Private healthcare spending in India has shown a steady and significant rise over the past decade. In 2013, the total private healthcare expenditure was \$77 billion, establishing the baseline for comparative analysis over subsequent years. The following year, 2014, witnessed an increase to \$79 billion, marking the beginning of a continuous upward trend. By 2015, spending further rose to \$82 billion due to economic growth and increased accessibility to private health services. This upward momentum carried into 2016, reaching \$86 billion as private hospital networks expanded, especially in urban areas, and demand for specialized diagnostic services grew. Between 2017 and 2018, private sector expenditure plateaued at \$87 billion, likely reflecting market stabilization and saturation of certain service segments. However, in 2019, a slight dip to \$84 billion occurred—possibly linked to macroeconomic uncertainty and emerging public health challenges preceding the COVID-19 pandemic. With the advent of the pandemic in 2020, private healthcare spending jumped to \$89 billion, primarily due to higher out-of-pocket expenses for COVID-19 testing, treatment, and increased utilization of private facilities.

The post-pandemic period marked dramatic growth: in 2021, spending surged to \$106 billion, illustrating the impact of increased demand for advanced medical care and diagnostics. In 2022, the spending edged up to \$108 billion, driven by ongoing healthcare needs, technological adoption, and greater coverage. By insurance 2022, private healthcare expenditure reached \$119 billion, signifying sustained growth, a robust response to healthcare crises, greater urbanization, and heightened perception of private healthcare quality and reliability. This trajectory

highlights the growing dominance of the private sector in India's healthcare landscape and underlines the pressing need for balanced regulation and public investment to ensure equitable access and financial protection for all citizens.

III METHODOLOGY

The analysis of the trends in the spending of private healthcare in 2013-2022 methodology is quantitative and statistical in nature and involves the application of a linear regression analysis. The former requires the gathering of credible, yearly healthcare expenditure statistics in billions of US dollars, over a period of 10 years and beyond. The present paper uses government and non-government spending data compiled on yearly basis.

Simple linear regression is the main statistical analysis tool to be utilised because it was selected to approximate the correlation between the independent variable (year) and the dependent variable (private healthcare spending). Regression analysis is used to estimate the slope of the trend, i.e. to estimate the average changes in spending that take place each year, and the correlation coefficients are used to determine the degree to which a linear relationship will exist. The statistical significance of the trend is checked through p-values to ascertain whether reported increase is improbable because of chance.

The preparation of data involves calculating the descriptive statistics of the annual values of expenditure and the annual changes as the contextualization of variability and growth rates to be modelled in advance. Residual analysis would be performed to confirm assumptions of regression models (normality, homoscedasticity).

The methodology strikes a balance between interpretability and effectiveness as well as the benefits of linear regression: simplicity, transparency, and appropriateness in timeseries trend finding in macroeconomic data sets. It, however, recognises the limitations including possible autocorrelation in timeseries data, or nonlinear trends, that might need sophisticated techniques in long analyses.

Overall, the approach represents empirical evidence of tendencies in the sphere of expenditure in healthcare privately to make specific policy recommendations connected to the financing, regulatory focus, and the distribution of resources to address the needs of the Indian healthcare.

IV ANALYSIS AND RESULTS

The table 1 data shows the annual expenditure of the private healthcare in India between the years 2013 and 2022, as well as the change in the value of spending per year. There was a general upward trend in the increase of the private healthcare expenditure as it rose in the period between 2013 and 2022 by 119.00 billion, compared to 77.00 billion in 2013. The first years (2013-2016) were marked with sluggish growth between 77 and 86 billion, and an annual growth of 1-4 billion. The spending slightly flattened in 2017-2018 and stood at 87 billion, with insignificant changes.

Table 1 - Private Healthcare Spending (\$B)

Year	Private Healthcare	Yearly
	Spending (\$B)	Change (\$B)
2013	77	NaN
2014	79	2.0
2015	82	3.0
2016	86	4.0
2017	87	1.0
2018	87	0.0
2019	84	-3.0
2020	89	5.0
2021	106	17.0
2022	108	2.0
2022	119	11.0

The only year that the figure fell was in 2019 to 84 billion, perhaps because of economic reasons that followed the outbreak of the COVID-19 pandemic. Nevertheless, expenditure reversed in 2020, increasing between 5 and 89 billion, as the growth was affected by the high demand of healthcare services due to the pandemic. The years 2021 and 2022 have shown a great growth with increments of 17 and 11 billion dollars respectively and this is due to increased healthcare use, new technology uptake, and economic recovery. The data highlight the dynamic character of the private healthcare

spending that is affected by health crises, economic changes, and the changing healthcare infrastructure and policy.

Table 2 – Correlation Coefficient

Statistic	Value
Slope	3.645
Correlation Coefficient (r)	0.894
P-value	0.0002

This trend highlights how the private healthcare sector in the overall spending on health in India is on the rise, which is a critical policy concern so as to provide equitable access and affordability among the various segments of the population.

The statistics provided are based on a linear regression study that will be investigating the trend in spending on the private healthcare during the period of 2013 to 2022. The slope of 3.645 shows that on average, the amount of money spent by Indians on medical services privately states of 3.65 billion per annum in this period which is steadily growing. The correlation coefficient (r) of 0.894 shows a positive linear relationship to a large extent indicated that there is a strong positive correlation between the year and spending implying that healthcare spending increases by a significant percentage as years go by. The pvalue is 0.0002, which means that the trend observed is statistically significant and that it is highly unlikely that it just occurred by chance, thus concluding that there has been a steady increase in spending on healthcare by the privates and it is not incidental in any way. To conclude, the statistical findings clearly indicate a solid, growing growth in the amount of private healthcare expenditure in India between the years 2013 and 2022, where there is substantial evidence to prove that the growth rate is real and manifests through more significant demographic, economic, healthcare industry shifts. This merits additional investigation and political considerations devoted to the consequences of increasing the number of healthcare spending on the part of the citizens in India.

V DISCUSSION

The results of the study give vital information on the changing nature of the private healthcare spending in India with a steady rise in the same between 2013 and 2022. The tendency is supported by the annual growth of about 3.65 billion dollars on average which is highly correlated with time and statistically significant. The increase is an intricate interplay of the rising incomes, urbanisation, rise in health awareness, the extrusion of medical technologies, and the rise in the private healthcare infrastructure. The significant peak in spending in the COVID-19 pandemic years only highlights the critical role of the private sector in addressing emerging demands in the management of public health.

This is a growing dependence on private healthcare; thus, it is of concern because of affordability and equity. Financial burdens are also more severe when out-of-pocket spending is elevated, and financially vulnerable groups are at risk, which justifies the importance of increased government spending on the healthcare sector and the broadening of insurance coverage to offer financial security. The continued increase also implies the tightness in regulatory control to ensure quality, access, and cost-effectiveness in delivering healthcare privately.

Moreover, the inequality in spending and accessibility in the regions also speaks in favour of unequal healthcare development in India. These differences have to be given consideration by policymakers to ensure that the interventions used are inclusive and coverage of the entire population. The effect of digital health innovations, insurance penetration and health-seeking behaviours should be investigated in future studies to further contextualise trends in spending.

To summarise, the growth of the private sector is making healthcare more accessible and capable; it is also putting policymakers in a difficult position of developing overall approaches that would guarantee financial sustainability and equal access to health in the ever-evolving healthcare sector in India. This research provides a sound background to make informed decisions and outlines the main priorities on how to accomplish this goal of balanced health financing to meet the increasing demands of the varied population in India.

VI CONCLUSION

To sum up, the research shows that the expenditure of the Indian population on healthcare in the private sector is increasing significantly and continuously throughout the period in 2013-2022, and the spending is expanding by many billions of dollars to 119 billion dollars. The increasing and statistically significant positive trend indicates more general socio-economic factors like the increasing incomes, the expansion of urban areas, and the increased use of the medical services provided in the private sector and improved by the technological progress. Even with this growth, the data also indicate that there continue to be some challenges, such as a large burden on households of out-of-pocket expenditure, regional differences, and the necessity of stronger funding of the public health.

The results underline the significance of policy interventions targeted at enhancing financial security of patients and increasing health insurance coverage in order to minimise disastrous health spending. It also highlights the importance of the critical regulation as the means of balancing the cost control, quality, access in the growing individual healthcare industry. It will be crucial to enhance the infrastructure of the public system and devise an healthcare encompassing strategy of health financing to facilitate the process of delivering healthcare a sustainable and equitable manner. Comprehensively, this research offers useful empirical data towards the health policy making to ensure that the healthcare system in India develops in an inclusive and efficient way amid the growth in healthcare spending on the private sector and the demand of population health.

Implication

The research contains a number of practical implications of the study on the healthcare policy and healthcare management in India. The marked and long-term increase in size of the expenditure of private healthcare points to the growing dependency on the services of the

private healthcare by the population, conditioned by the economic growth, urbanisation and the perception of quality. The trend highlights a pressing necessity of better systems regulatory to assure affordability, and transparency in the private health services. Policymakers should focus more on increasing investments in the field of public healthcare and health insurance so that the financial burden on households could be mitigated and many people who have to meet large out-of-pocket costs could be pushed into poverty. The results indicate that the Indian healthcare financing needs to be sustainable through the balanced mix of private sector effectiveness and the presence of a powerful management of the public sector and its support.

The evidence can be used by healthcare givers and technology innovators in strategizing scalable service delivery models and costeffective interventions that are specific to different segments of the population such as the rural and marginalised groups. Lastly, the research promotes the further investigation of regional differences, insurance influence, and seeking-healthcare behaviour in order optimise intercessions and create comprehensive development of the Indian health ecosystem. The consideration of these implications will be central towards the transition to universal health coverage and fair access to quality medical care in India.

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