

Human Capital Development, Health Investment, and Economic Growth in India: An Analytical Study

¹Chandrakala P, ²Dr. G.L. Parvathamma

¹Assistant Professor of Economics, ²Senior Professor of Economics

¹²Department of Economics,

¹KLE Law College, Bengaluru, ²Bangalore University

Abstract—Good Health is the most fundamental requirement for human wellbeing, a key component of human capital, a fundamental need for a country, and healthy human capital is a strategic determinant of sustainable development. In the most advanced countries, investment in health is considered very important as it enhances labour productivity, improves labour participation, promotes educational attainment, and contributes to the economic development of the country. In the case of India, we want to harness the demographic dividend to achieve the objectives of the Viksit Bharat 2047 vision. Despite an increase in public expenditure on the health sector in India, little research has examined how health investment contributes to human capital formation and long-term economic growth. The paper adopts descriptive and analytical research based on secondary data. obtained from government reports of the Economic Survey, National Health Accounts, World Health Organisation, World Bank, and other official documents. It critically analyses the trends in public health expenditure, health care infrastructure, health outcomes, and policy interventions to assess whether the increased investment has converted into measurable outcomes. The analysis indicates that consistent investment in the health care sector improves health outcomes, improves labour productivity, strengthens human capital, and support to achieve sustainable and inclusive economic growth.

The study concludes that an increase in public investment in the health sector, supporting primary health care, preventive health care, digital health reforms, equitable financial protection, and efficient regulations, is essential for harnessing human capital and achieving inclusive and sustainable economic development.

Index Terms—Human Capital, Health investment, Labour productivity, public health expenditure, Economic growth, public health policy

I. Introduction

“Health is a durable capital stock that produces healthy time, which can be used for work, leisure, and other activities.”

— Michael Grossman, *The Demand for Health: A Theoretical and Empirical Investigation* (1972)

Health is not just the absence of disease; it is the foundation on which human capital is built. The country's development is measured in terms of physical capital, like machines, factories, and infrastructure; but the actual development of a country lies in the capabilities of its human resources. People can contribute to the economy only when they are healthy, educated, and skilled. It is in this context that health investment should not be considered as expenditure of social welfare, but needs to prioritise strategic economic

investment that yields long-term returns in the form of a productive, capable, and resilient workforce (Bloom, Canning, & Sevilla, 2004)¹.

The concept of human capital, first developed systematically by Theodore W. Schultz (1961)² and Gary S. Becker (1964)³, treats the education, skills, and health of individuals as a form of capital, just like physical capital, as it generates a return over time in various forms like higher productivity and higher earnings, etc. Health is one of the central pillars of human capital, just like education. A healthy person can get a better education, learn effectively, participate in the labour force, work for longer hours, and remain productive for a longer period of time. On the other hand, poor health reduces labour supply, decreases productivity, increases absenteeism, and pushes households into poverty because of high health expenditure.

With the youngest population in the world, India currently stands at an important phase of its development journey. The country possesses a good demographic dividend; currently, the working-age population is proportionately larger than the dependent population in India. However, this does not automatically turn into economic growth. It has to be gained through strategic planning and consistent investment in the health, nutrition, and education of the population (NITI Aayog, 2021)⁴. If this human factor is not utilised properly, India has risks of a demographic burden rather than a demographic dividend; a young population without adequate health and skills can become a burden on the economy rather than a growth engine. Keshava and Hanumantharaya (2025) emphasize that improvements in education, healthcare, skill development, employment opportunities, and access to basic services have contributed to poverty reduction in India. Their findings indicate that human capital development is an important component of inclusive economic growth, as higher educational attainment and improved access to health and social protection can enhance individuals' economic opportunities and reduce deprivation.

As India moves towards the Viksit Bharat 2047 vision, the goal of becoming a completely developed nation by the 100th year of independence- questions like whether India's health investments are truly turning into stronger human capital and whether sustained economic growth is achieved become extremely important. The Economic Survey of India -2025 points out that India's total health expenditure has been increasing rapidly, driven by important schemes such as Ayushman Bharat, the National Health Mission, and the Ayushman Bharat Digital Mission. Yet health expenditure as a proportion of GDP remains below, as per the National Health Policy, 2017. In India, compared to other countries, the out-of-pocket expenditure on health continues to be high. In this context, the study tries to examine the relationship between health investment,

¹ Bloom, D. E., Canning, D., & Sevilla, J. (2004). The Effect of Health on Economic Growth: A Production Function Approach. *World Development*, 32, 1-13.,

² Schultz, T. W. (1961). Investment in human capital. *The American Economic Review*, 51(1), 1-17.

³ Becker, G. S. (1964). Human capital: A theoretical and empirical analysis with special reference to education. National Bureau of Economic Research (NBER).

⁴ NITI Aayog. (2021). Systemic transformation of school education: The SATH-E experience. Government of India.

human capital formation, and economic growth in India, based on the latest available government and international data.

II. Review of Literature

Schultz (1961)⁵ argues that expenditure on health and education should be treated as investment, not consumption or just social welfare, because it raises the future productivity of individuals. Becker (1964)⁶, in his theory of human capital, emphasised that health spending, like education spending, builds a stock of capital returns in a person's working life. On the Concept of Health Capital and the Demand for Health, Grossman (1972)⁷ - argued that health itself is a durable capital stock which an individual inherits and can invest in, and produces "healthy time" usable for work and other activities. This model remains the base for most later empirical work on health and growth.

Chatterjee and Kapur (2023)⁸ study noticed that health systems improve the productivity of labour by promoting better health, and that a healthy population generates goods and services that directly contribute to economic output and are a significant source of employment.

Rout, Swain, and Rout (2023)⁹ conducted a study based on National Health Workforce Account and Periodic Labour Force Survey data. They argued that increased health investment improves health outcomes and has the potential to generate more employment and raise labour productivity, and boost economic growth. Several other studies also agree with this. A review by Bloom, Kuhn, and Prettnner (2024)¹⁰ examined many empirical literature and found a positive impact of health investment on education and labour market outcomes, improvement in both contributes to poverty reduction; However, they also noticed that the direct impact of health investment on macroeconomic growth is difficult to measure because of many confusing factors, but its effects at the household level are more clearly identifiable.

The World Bank's Human Capital Index (World Bank, 2020): India was at 116th rank out of 174 countries, with a 0.49 score. It means that a child born in India is only 49 percent as productive in adulthood with complete education and good health. While this is an improvement from a score of 0.44 in 2018, it also reveals the fact that India still needs to cover a huge gap compared with countries at a similar level of income. Considering the existing literature, supports the idea that health investment is very important to productive human capital formation and, through it, economic growth can be achieved.

⁵ Schultz, T. W. (1961). Investment in human capital. The Americanhas Economic Review.

⁶ Becker, G. S. (1964). Human capital: A theoretical and empirical analysis with special reference to education

⁷ Grossman, M. (1972). On the concept of health capital and the demand for health. *Journal of Political Economy*, 80(2), 223–255

⁸ Chatterjee, S., Kotiadis, K., & Gartner, D. (2023). *A new vision and direction for Health Systems*. *Health Systems*, 12(1),

⁹ Rout, H. S., Swain, C. K., & Rout, B. (2023). Health workforce and employment in India: Evidence from National Health Workforce Accounts and the Periodic Labour Force Survey.

¹⁰ Bloom, D. E., Canning, D., & Sevilla, J. (2004). The Effect of Health on Economic Growth: A Production Function Approach. *World Development*, 32(1), 1–13.

India's economic development over the past seven decades has been accompanied by improvements in income, infrastructure, and productive capacity; however, inadequate investment in education and healthcare and deficiencies in human capital remain important challenges to achieving inclusive and sustainable economic growth (Keshava, 2022).

The National Health Policy (2017) aims to increase public health expenditure to 2.5 per cent of GDP to meet the growing medical needs of the population. Recent reports from the National Health Accounts, the Ministry of Health and Family Welfare, NITI Aayog, and Policy Research System - Legislative Research data indicate gradual improvement in public health expenditure, reduction in out-of-pocket expenditure, and improved maternal and children's health outcomes. However, these reports also point out challenges such as regional disparities, inadequate rural healthcare infrastructure, and the need for stronger healthcare investment. These findings explain that India has made significant progress; sustained and equitable health investment remains essential for achieving the goals of Viksit Bharat 2047.

In this context, there is a need to critically examine whether India's health investment is effectively converted into measurable health outcomes and, eventually, into stronger human capital and economic growth. The existing literature on this is purely theoretical, limited to comparative studies that do not address India's specific details, or focused only on a single scheme or sub-sectors of health. A comparatively limited study that examines the recent developments and interactions of health investment, health outcomes, India's human capital, and growth aspirations under Viksit Bharat 2047. The present study attempts to fill this gap precisely.

III. Objectives of the Research

The study has the following broad objectives:

- To examine the trends in public health expenditure of India in recent years.
- To assess the extent to which health investment contributes to human capital formation in India.
- To study the relationship between health investment, human capital, and economic growth.

IV. Research Questions

- To what extent has public health expenditure in India changed between 2015 to 2025?
- To what extent have increased health investments been associated with improvements in healthcare infrastructure and health outcomes?
- How does investment in health contribute to human capital formation and economic growth in India?

V. Research Methodology

The study adopts a descriptive and analytical research method based on secondary data. Using trend analysis, Comparative tabulation, and interpretive analytical discussion, the study integrates existing data to interpret the relationship between healthcare investment, human capital, and economic growth. The study is based on data from the Economic Survey of India, National Health Accounts, the World Health Organization (WHO), the World Bank, NITI Aayog's Health Index and SDG India Index, Sample Registration System (SRS) reports, PRS Legislative Research budget briefs, and Press Information Bureau (PIB) releases.

VI. Trends in Public Health Expenditure

India's expenditure on health has increased from 1.28 per cent of GDP in 2018-19 to 1.9 per cent in 2023-24. As per the target set by the National Health Policy, 2017 (NHP), this is still lesser than the 2.5 per cent of GDP. In terms of budget allocation, the Ministry of Health and Family Welfare has increased almost every year, though the growth rate is fluctuating a lot, as Table 1 shows.

Table 1. Union Health Budget Allocation, 2021-22 to 2026-27.

Financial Year	Health Budget Allocation (₹ crores)	Year-on-Year Growth
2021-22	74,602	—
2022-23	86,606	+16.1%
2023-24	88,956	+2.7%
2024-25	90,658	+12.6%
2025-26	99,859	+11%
2026-27	1,06,530	+10%

Source: PRS Legislative Research (2025); PIB (2026).

The 2026-27 fund allocation indicates an increase of over 194 per cent compared to the health budget of 2014-15 (PIB, 2026). But the health sector's share in the total Union Budget has actually declined in recent years. Currently, it's just around 1.9 - 2 per cent of total government expenditure. To some extent, out-of-pocket expenditure has come down to 39.4 per cent of total health spending in 2021-22. Due to health inflation, households are still bearing considerable cost, and along with that, nearly 400 million Indians do not have any health insurance cover (PMFIAS, 2025). This trend shows that the health expenditure system is moving gradually, not as per the required amount and in the right direction — public spending rising, budgetary share unpredictable, and burden on households decreasing but slowly.

VII. Healthcare Infrastructure and Health Outcome Indicators

Rising health investment is meaningful only when it converts into actual improvement at the ground level. On the other side, health infrastructure in India still has a considerable difference between urban and rural areas. The ratio of doctors in many rural areas is around 1:2,000. As per the recommendation of WHO doctor population ration should be 1:1,000. Table 2: Discuss health outcomes through Sample Registration System data. However, present a much more encouraging trend.

Table 2. India's Maternal and Child Health Indicators.

Indicator	2014- 15	2023- 24
Infant Mortality Rate (per 1,000 live births)	39	25
Neonatal Mortality Rate (per 1,000 live births)	26	19
Under-Five Mortality Rate (per 1,000 live births)	45	29
Maternal Mortality Ratio (per 1,00,000 live births)	130 (2014-16)	88 (2021-23)
Total Fertility Rate	2.3	1.9
Sex Ratio at Birth (girls per 1,000 boys)	899	917

Source: PIB (2025), National Family Health Survey -6 (2023-24)

India has achieved significant progress in improving child health and reducing child and maternal mortality. According to the United Nations Inter-agency Group for Child Mortality Estimation, India recorded a 78 per cent decline in Under-Five Mortality between 1990 and 2023, compared to the global average decline of 61 per cent (PIB, 2025). The NITI Aayog's Sustainable Development Goals India's Index also shows improvement in health and well-being and meeting SDG-3. Along with that, 93.23 per cent of children were fully immunised, while 97.18 per cent of deliveries happened in hospitals. (NITI Aayog, 2024)

These data convey that even though there is a gap in infrastructure, particularly in rural areas. the important human capital outcomes like child survival, maternal survival, and immunisation have improved significantly over the decade.

VIII. Major Policy Interventions

The world's largest publicly funded health insurance scheme, Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana (AB-PMJAY), launched in 2018, provides health insurance coverage up to ₹5 lakh per family per year. 40 per cent of the economically weaker population, roughly 12 crore families (IBEF, 2025), are

covered under this programme. In October 2024, this scheme was expanded to cover all senior citizens aged 70 and above, benefiting about 6 crore additional persons (MoHFW, 2025). Table 3 shows the scale-up of the scheme.

Table 3. Growth of AB-PMJAY, 2024-2026.

Indicator	June 2024 (In crores)	March 2025 (In crores)	Early 2026 (In crores)
Ayushman cards created	34	36.9	43.52
Hospital admissions authorised	7.37	8.99	11.69
Amount authorised	₹1 lakh	₹1.26 lakh	₹1.73 lakh
Hospitals enrolled	—	30,957	36,000

Source: Ministry of Health and Family Welfare (MoHFW)

Along with insurance support, the Pradhan Mantri Ayushman Bharat Health Infrastructure Mission (PM-ABHIM) allocated ₹4,770 crore in 2026-27 to improve health system capacity at every level (PIB, 2026). National Health Mission has increased funding to ₹39,390 crore in 2026–27 to develop primary healthcare delivery (Policy Research Studies, 2025; PIB, 2026). Ayushman Bharat Digital Mission is working on unified health records and improving telemedicine services and tele-mental health services in underserved regions. The above-mentioned schemes show the government's interest in investing across different needs of healthcare, including infrastructure, healthcare delivery, and health insurance, etc.

IX. Employment and Productivity Trends in the Wider Economy

As per the Periodic Labour Force Survey (PLFS) data. There is significant improvement in India's overall labour force participation, and the working population ratio also increased over a period of time. This is also because of factors like education, MGNREGA, and programmes—a healthy population is one of the major requirements for higher workforce participation.

Table 4. Labour Force and Employment Trends in India.

Indicator (age 15+, usual status)	2017-18	2023-24
Overall Labour Force Participation Rate (LFPR)	49.8%	60.1%
Male LFPR	75.8%	78.8%
Female LFPR	23.3%	41.7%

Overall Worker Population Ratio (WPR)	46.8%	58.2%
Unemployment Rate (UR)	6.0%	3.2%
LFPR, all persons, latest (2025)	—	59.3% (2025)

Source: PLFS Annual Reports, Ministry of Statistics and Programme Implementation (2023, 2024, 2025).

Along with increasing participation, the earnings of labourers are also improving; average monthly earnings of regular male workers increased from about ₹22,891 to ₹24,217 (nearly 5.8 per cent growth) and for female workers from ₹17,126 to ₹18,353 (about 7.2 per cent growth) between 2024 and 2025. Increased productivity of a healthier workforce, along with formal employment growth, together indicate economic progress where more people are working, staying in work longer, and earning more — these outcomes are consistent with, though not just by, improving health Investment.

X. Broader Human Development Gains

Along with employment, better health investment is also witnessed in other human development indicators, which are directly related to the human capital argument of the main paper.

Table 5. Human Development Indicators Linked to Health Investment.

Indicator	2013-17	2020-2025
Life Expectancy at Birth (years)	69.0	72.0
Human Development Index (HDI) score	0.640	0.685
India's HDI global rank	130th	130th
SDG India Index, Goal 3 (Health) score	52	77
Persons pushed into poverty annually by medical costs (pre-PMJAY)	~6 crore	Substantially reduced post-PMJAY

Source: World Bank/Data For India (2026); UNDP Human Development Report via The Mirrority (2025); NITI Aayog (2024)

A rise in life expectancy from 69 to 72 years means three more years of potential working and earning life compared to a previous decade. This is combined with declining Infant and maternal mortality, turning into a larger, longer-living, and more productive workforce over time.

This evidence strengthens the central argument of the study in three ways. First, it shows health investment is generating employment directly, inside the health sector itself, not only indirectly through better health outcomes. Second, it shows that the years in which health expenditure and outcomes have been improving

are also years in which India's labour force participation, worker population ratio and worker earnings have all increased. Third, it shows the human development gains- life expectancy, HDI, SDG health score- are moving in a positive direction.

XI. Key Findings

Government health expenditure in India increased from 1.28 per cent of GDP in 2018–19 to 1.9 per cent in 2023–24, but it is still low compared to the National Health Policy target of 2.5 per cent. The central health budget also increased every year and crossed ₹1.06 lakh crore in 2026–27, although its share in the total budget has declined in recent years. At the same time, out-of-pocket expenditure decreased to 39.4 per cent of total health expenditure in 2021–22, indicating an improvement in financial protection. Other health outcomes like Infant Mortality Rate falling from 39 to 25 and the Maternal Mortality Ratio declining from 130 to 88 show significant improvement. The AB-PMJAY scheme has expanded significantly, covering more than 43 crore cards and supporting 11.69 crore hospital admissions by early 2026, with senior citizens also included. However, rural healthcare infrastructure gaps and differences between states continue to affect equal access to healthcare and limit the development of human capital.

XII. Policy Suggestions

The government should increase health spending to reach the target of 2.5% of GDP and ensure that the allocated funds are completely utilised to meet the needs. focus should be more on primary healthcare, preventive care, immunisation, and nutrition to prevent diseases and avoid expensive treatment at advanced stages. Under AB-PMJAY, health insurance coverage should be expanded to include all underprivileged people to reduce the burden of medical expenses on poor families. The rural-urban difference in healthcare should be reduced by improving health infrastructure, appointing more doctors and medical staff, and providing incentives for healthcare workers to serve in rural and backward areas. Digital health initiatives under the Ayushman Bharat Digital Mission should be strengthened to improve healthcare efficiency and monitor outcomes. Better monitoring, transparent use of funds, and coordination between the Centre and States are also needed to ensure that health investment effectively improves human capital and supports economic growth.

XIII. Conclusion

This paper examined whether India's rising public health expenditure is getting converted into human capital formation and, in turn, economic growth. Drawing on secondary data, the analysis finds that India's health investment, though it has some limitations, has progressed. Expenditure has increased steadily but remains below the policy target; maternal and child health outcomes improved substantially; Schemes like AB-PMJAY extended financial protection to millions. But infrastructural gaps, regional disparities, and declining budgetary provisions point towards the shortfalls.

As India is working towards Viksit Bharat 2047, its demographic dividend can be productive only if the population is healthy and financially secure enough to completely participate in the economy. An increase in public investment, stronger primary healthcare, preventive healthcare, digital reforms, equitable financial protection, and efficient regulation are essential for India to fully harness its human capital and achieve inclusive, sustainable development. In this context, health investment needs to be considered as a foundational input into the nation's long-term growth strategy.

References

- [1] Anand, S., et al. (2021). Health workforce in India: Where to invest, how much and why? World Health Organisation, Country Office for India.
<https://cdn.who.int/media/docs/default-source/searo/india/publications/health-workforce-in-india-where-to-invest--how-much-and-why.pdf>
- [2]
- [3] Anand, S., et al. (2023). Achieving universal health coverage and sustainable development goals by 2030: Investment estimates to increase production of health professionals in India. Human Resources for Health, 21, Article 15. <https://doi.org/10.1186/s12960-023-00802-y>
- [4]
- [5] Barristery. (2026, February). Ayushman Bharat Yojana (PM-JAY) 2026.
<https://www.barristery.in/2025/09/ayushman-bharat-yojana.html>
- [6] Becker, G. S. (1964). Human capital: A theoretical and empirical analysis, with special reference to education. University of Chicago Press.
- [7] Data For India. (2026, March 9). Maternal mortality in India.
<https://www.dataforindia.com/maternal-mortality/>
- [8] Down To Earth. (2024, August 12). As told to Parliament (August 9, 2024): Government health expenditure stood at 1.9% of GDP in 2023-24.
<https://www.downtoearth.org.in/governance/as-told-to-parliament-august-9-2024-government-health-expenditure-stood-at-19-of-gdp-in-2023-24>
- [9] Grossman, M. (1972). On the concept of health capital and the demand for health. Journal of Political Economy, 80(2), 223–255. <https://doi.org/10.1086/259880>
- [10] Institute for Business and Economic Facts [IBEF]. (2025). Ayushman Bharat – Universal healthcare scheme & key initiatives. <https://www.ibef.org/government-schemes/ayushman-bharat>
- [11] Keshava, S. R. (2022). 75 years of India's economic development: Evaluation, challenges, and way forward. Kristu Jayanti Journal of Management Sciences, 1(1), 1–17. SSRN full-text article
- [12] Keshava S.R., Hanumantharayappa B.H.; (June, 2025); Declining Poverty in India: An Analysis of Government-Led Alleviation and Development Efforts Since Economic Reforms; International Journal of Research in Social Sciences and Humanities; Vol 15,
- [13] Issue 2; 163-170; DOI: <http://doi.org/10.37648/ijrssh.v15i02.015>

- [14] Medical Dialogues. (2025, March 31). 8.99 crore hospital admissions worth Rs 1.26 lakh crore authorised under PMJAY.
<https://medicaldialogues.in/news/health/hospital-diagnostics/899-crore-hospital-admissions-worth-rs-126-lakh-crore-authorised-under-pmjay-145772>
- [15] Ministry of Health and Family Welfare [MoHFW]. (2017). National Health Policy 2017. Government of India.
- [16] Ministry of Health and Family Welfare [MoHFW]. (2025). Update on Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY).
<https://www.mohfw.gov.in/?q=en/pressrelease/update-ayushman-bharat-pradhan-mantri-jan-arogya-yojana-ab-pm-jay>
- [17] News on Air. (2024, August 2). Over 34 crore Ayushman cards created under AB-PMJAY; 7.37 crore hospital admissions authorized. <https://www.newsonair.gov.in/>
- [18] NITI Aayog. (2024, July 13). SDG India Index 4.0: Goal 3 – Good health and well-being [Post]. X. <https://x.com/NITIAayog/status/1812156672091287598>
- [19] Observer Research Foundation [ORF]. (2024, October 1). National Health Accounts: Public spending finally overtakes out-of-pocket spending.
<https://www.orfonline.org/expert-speak/national-health-accounts-public-spending-finally-overtakes-out-of-pocket-spending>
- [20] Observer Research Foundation [ORF]. (2025, February 4). Union Budget 2025: A pulse check on healthcare. <https://www.orfonline.org/expert-speak/union-budget-2025-a-pulse-check-on-healthcare>
- [21] PMFIAS. (2025, March 26). Healthcare expenditure in India.
<https://www.pmfias.com/healthcare-expenditure-in-india/>
- [22] Press Information Bureau [PIB]. (2025, May 7). India witnesses a steady downward trend in maternal and child mortality towards achievement of SDG 2030 targets. Government of India.
<https://www.pib.gov.in/PressReleasePage.aspx?PRID=2128024>
- [23] Press Information Bureau [PIB]. (2026, February 1). Union Budget 2026-27: ₹1,06,530.42 crore allocated to Ministry of Health and Family Welfare. Government of India.
<https://www.pib.gov.in/PressReleasePage.aspx?PRID=2221616>
- [24] PRS Legislative Research. (2025, March). Demand for Grants 2025-26 analysis: Health and Family Welfare.
<https://prsindia.org/budgets/parliament/demand-for-grants-2025-26-analysis-health-and-family-welfare>
- [25] Schultz, T. W. (1961). Investment in human capital. American Economic Review, 51(1), 1–17.