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## **EMERGING IMPACT OF HEALTH ECONOMICS IN THE BIHAR – A STUDY OF MUNGER DISTRICT**

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### **Abstract**

The current economic climate is casting doubt on India's development potential and aspirations of becoming a global economic powerhouse. This is due, in large part, to the fact that the nation has not been able to secure fundamental services like healthcare and education for the vast majority of its citizens. Even within the same state, there is a great deal of variation in the most fundamental facets of human growth, such health and education. Bihar has the largest population density in India, and this research aims to measure the extent to which there is inequality in health status and access to health care services in the state. An extensive analysis of health status and health care inequalities across districts and regions in the two states has been conducted using secondary data gathered from the Annual Health Survey (2011) and the Statistical Diary (2011). Composite measures of health status and health services have been developed by combining Maher's normalization method with principal component analysis. The importance of the differences between the two states and the factors contributing to those differences have been investigated using inequality metrics like the coefficient of variations. There is a large disparity in health across districts and regions in the states, and the overall health condition is bad, the survey found. However, although there is a smaller gap in health status, the gap in health infrastructure is somewhat considerable in Bihar. The stunning reality is that there is a very weak and irrelevant connection between the infrastructure and the outcome. The study shows that health care facilities aren't the only factors influencing people's health condition; the government's commitment and policies are the most crucial.

**Keywords-:** Impact, Health, Economics, Bihar.

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## Introduction

Today, India's hopes of becoming an economic superpower and its development boom are being tested and crushed. The failure to foster inclusive development and ensure that the majority of its citizens have access to essential services, such as healthcare and education, is a contributing factor. A large segment of the global population is now unable to enjoy the advantages of development and has limited access to basic requirements for survival, including healthcare, education, clean water, and adequate nutrition, among many others. On one hand, there is a severe lack of progress on social sector indicators at the national level, which is on par with other developing nations. On the other hand, there is a wide gap between and within states when it comes to health and education, two of the most important factors in human development. No country can fulfill its fundamental responsibility as a welfare state or even come close to developing its workforce's full potential if it struggles to provide basic amenities and facilities like healthcare and education (3, 4). The availability of enough literature lends credence to the claim made before. The present health of a person has a direct bearing on their efficiency and production. The uneven distribution of health care facilities and the achievement of health status is a major reason for concern in this setting. While certain states, like Tamil Nadu and Kerala, have health indices that can hold their own against the most developed emerging market economies, others, like Uttar Pradesh and Bihar, are in a terrible mess.<sup>5</sup> India's most populous states, Uttar Pradesh and Bihar, rank third and first, respectively, in terms of basic health care services, yet there are large regional and district-level inequalities within those states. State governments would bear the brunt of this situation regardless of how abundant their natural resource base is, and it would also be detrimental to the interests of the poor and marginalized people who reside there. Therefore, in order to prescribe appropriate policies, it is crucial to know how similar these two developing states are in terms of health and health infrastructure, and to be aware of the regional and district-level differences that exist in this area. The work being shown here is specifically designed to achieve this goal.

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## Literature review



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Loutfi, D., Lévesque, J. F., & Mukherjee, S. (2018). Chronic diseases are becoming more common in India, which is mostly attributable to the country's aging population. Given the limited health insurance options, this might have far-reaching effects on the families' ability to get the care they need and their ability to pay for it. In light of the above, this research aims to examine how families with older members spend money on healthcare, how many opt out of treatment, how much money is lost, and how individuals find other ways to pay for it. The data included in this article are derived from a 2004 National Sample poll Organization poll that examined healthcare in the Indian states of Bihar and Kerala. Older people make up a larger proportion of Keralan households, and they are more likely to suffer from chronic diseases. There is a correlation between this and the higher reported rate of catastrophic health expenditure (CHE) in Kerala. Our research suggests that certain demographics, such those without any elderly relatives living in the household, may be borrowing money to avoid the financial fallout of healthcare costs as soon as possible. This is true even if CHE is linked to factors such as private treatment, the incidence of chronic disease, and the presence of elderly family members in the house. Although an older population is leading to higher health costs for families due to an increase in the number of chronic diseases, the impact of opting for private treatment is much less apparent.

Priya, S. (2018). This study examines the development and present condition of health among the inhabitants of the Indian state of Bihar using a variety of health indicators. Better health outcomes have been the goal of Bihar's ongoing efforts to improve the state's healthcare infrastructure and other amenities. The flip side is that this field requires a substantial amount of effort. In the present day, health outcomes are highly correlated with socioeconomic factors. A worse standard of living, including nutrition and health, is associated with a larger family size and lower income levels. Similarly, the fertility rate, the legal marriage age, and the extent to which the general population has access to health care are all affected by the literacy rate. The many factors influencing health outcomes in Bihar are the focus of this study.

Dang, A., Likhar, N., & Alok, U. (2016). When it comes to making decisions that affect people's health, health economic studies provide knowledge that decision-makers may utilize to their benefit. Economic evaluation is a subject of health economics that helps to compare the benefits and drawbacks of different therapies. As a tool for economic evaluation, health technology assessment has proved useful for both developing and rich nations. The conventional way of classifying

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economic assessments consists of four parts: cost-minimization, cost-effectiveness, cost-utility, and cost-benefit. They have been hesitant to fully execute their rules, which has led to some uncertainty about how these economic evaluations have been done in India. The biggest problem with this evolutionary process is that everyone involved in health care procurement and supply doesn't know much about the present practices. Many countries have utilized various techniques to economic evaluation for decision-making purposes. The most common use of these methods has been to deal with the problem of government subsidies for drug purchases. There is a lack of data on the impact of health insurance on the financial and physical health of individuals in underdeveloped countries. There are a lot of various strategies that India is doing right now to improve the quality of healthcare it offers its citizens. Efforts in this direction include funding both publicly provided services and those offered by private companies via a range of procurement mechanisms. Opportunities for further advancement in this field are required in India. This is because health care systems will need more economic efficiency to deal with increasing health care inflation, chronic sickness rates, an aging population, and the dissemination of new technologies.

### **Population Dynamics of Bihar**

Kerala is one of the Indian states that has achieved human development metrics on par with the industrialized West. However, there are a handful of states whose human development metrics are more in line with those of the world's least developed areas, such Bihar. Eastern states also have the worst health status and socioeconomic category-based developmental indices (Raj & Raj 2004). On top of the existing development gap between the state's several areas, this is a major divider. With an area of 94,163 square kilometers and a population of 103.8 million, Bihar was formed in 2001 from Jharkhand, according to the Government of India (2011). Males make up 54,185,347 of the total population, while females number 49,619,290. The sum of all these numbers is Bihar's total population. The reported female population deficiency in Bihar was 4,566,057 in 2011. The state of Bihar is comprised of around 44,874 revenue villages, 101 sub divisions, 534 blocks, and 9 administrative divisions. With 1,102 people per square kilometer, the state's population density is much more than the national average of 382. In 2011, Bihar has the highest population density out of the 28 states in India. This is really unprecedented. So, the state's population is increasing at a much faster pace than the country's average, according to a 2011 study from the Government of India. In the recent decade, the population of Bihar increased at a rate that was 25.1% more than the



national average. When compared to the national average, this indicates that the state's population is growing at a considerable rate. The information is in Table 1.

**Table 1. Bihar and India are shown here with some demographic indicators.**

S. No.	Item	India	Bihar
1	Count of people (in millions)	1210.2	103.8
2	Population Growth by Decade (in %)	17.6	25.1
3	Girls' Level of Education (in %)	65.5	53.33
4	Females to men (sex ratio)	940	916
5	Females per 1,000 men is the child sex ratio.	914	933
6	Total Ratio of Urbanization (%)	31.2	11.3

Climbed from 10.5% to 11.3%, a gain of only 0.8%. There is hardly any value to this. The urbanization rate in India, on the other hand, rose from 27.8% to 31.2%, a 3.4% rise, throughout the decade. The absence of urbanization data in a state is indicative of its underdevelopment since it shows the state's low rate of industrialization and its consequent dependence on organized manufacturing and service sectors. Because of the state's substantial dependence on agriculture, underemployment and hidden unemployment are common. These realities are reflected in statistical measurements like the poverty rate and the state's per capita income. According to The Economic Times (2011), Bihar's per capita annual income (at current rates) was anticipated to be '20,069 in 2010-11, down slightly from '7914 in 2004-05. In 2010–2011, the Indian government projected a national per capita income of '53,331 at current prices. More over half of Bihar's population is considered to be living below the poverty line (BPL), compared to 26.1% nationally.<sup>3</sup> Bihar's agricultural economy, which makes use of the state's extensive fertile land and plentiful but underutilized water resources, is a result of its low industrialization, huge population of unskilled workers, and inadequate urbanization. A large pool of individuals is available who do not possess the essential abilities. Taking into account the agricultural sector of the state, Bihar's influence is small regardless of this advantage. Regardless, due to its untapped large agricultural potential, the



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state is described as a "sleeping giant" (National Commission on Farmers 2006: 256). According to Kumar (2010), the current fertile crescent, which includes western Uttar Pradesh, Punjab, and Haryana, has reached an ecological and economic low point. According to the Commission (2006), this is the reason why Bihar and the rest of eastern India have so much potential to become another "fertile crescent."

Another crucial indicator of human development is the literacy rate. An astounding leap was made by Bihar's literacy rate, which increased from 47% in the 2001 census to 64% in the 2011 census. India, on the other hand, had a literacy rate of 74% and 65% over the same time. From 18% in 2001 to 10% in 2011, there was a considerable improvement in the literacy gap between Bihar and the rest of the nation. The 2001 census found that 59.7 percent of men and 33.1 percent of females in Bihar could read and write. The numbers for men increased to 73% and for females to 53% by 2011. With this increase, India's male literacy rate reached 82% while its female literacy rate reached 65%. Women in rural areas are more likely to be illiterate, according to the study's authors.

Higher education institutions in Bihar have one of the lowest Gross Enrollment Ratios (GERs)<sup>4</sup> in India compared to other states. Current estimates put India's population growth rate (GER) at around 17%, far below than the target of 30% set by the National Sample Survey Organization (NSSO). Only over 7% of Biharis have GER. Bihar has the nation's lowest school density relative to population. When compared to other Indian states, Bihar has one of the lowest concentrations of universities providing bachelor's degrees in the humanities, natural sciences, and business, with just about 73 institutions per 100,000 residents. As a point of perspective, India typically has 105 institutions. Of these, 237 are in Andhra Pradesh, 171 are in Maharashtra, 152 are in Orissa, 132 are in Rajasthan, and 105 are in Uttar Pradesh (Kumari, 2012). In Bihar, the situation regarding technical education is far worse. Forty institutions have to be set up in the state of Bihar, which is home to around 100 million people. However, there are now just twelve educational institutes in the state; among them, one each focuses on Sanskrit, Arabic-Persian, and agriculture. As a whole, and especially in higher education, people believe that education is crucial to a region's economic and social development since it fosters creativity and initiative. If Bihar continues to lag behind other states in higher education, it would not be able to meet its need for educated entrepreneurs and creative thinkers. This indicates that the state's growth is not progressing as anticipated, and it is also falling behind.

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## Health Challenges

Complexity characterizes Bihar's health status. We start by taking a look at the current state of health as it is a sign of the socio-economic growth. Numerous variables influence an individual's health condition, including their household, water supply, sanitation, education, occupation, health awareness, and personal hygiene practices, as well as their income and quality of life. Resolving concerns related to health care coverage, accessibility, price, acceptability, and availability may lead to improvements in individuals' well-being. Overcrowding in dwellings, dirty environmental conditions, uncontrolled water supply, and bad food are all potential reasons for the low health status. Deficit illnesses, airborne diseases, faecal-associated disorders, and watery infections are the most frequent types of diseases in less developed regions, according to the Public Health Initiative (2007). A number of circumstances are favorable to the development of a number of diseases. The interconnected nature of health, development, poverty, and health is, hence, multi-faceted. Poverty and underdevelopment, in all its forms, may be signs of larger social and personal health issues.

After 60 years of independence, India's health care system is still severely lacking. There has been a little uptick in public financing for healthcare. As to the Prime Minister of India (2012), the share of GDP increased from less than one percent in 2006–2007 to an anticipated 1.5 percent by the conclusion of the Eleventh Five Year Plan (2007–2012). Nearly three quarters of the nation's health care expenditure was borne by families, according to a 2005 study by the National Commission on Microeconomics and Health. A major obstacle, particularly in the private sector, to health care access for lower-income families in India. This is due to the fact that over two-thirds of India's population is impoverished, meaning they are unable to meet their fundamental necessities, as stated by the World Bank (as cited in Kaminsky & Long 2011: 562). When looking at health statistics from Bihar compared to the rest of the country, it is clear that things are far worse there. Recent years have seen significant improvement in Bihar's health care system, which is nonetheless widely regarded as in poor shape (Government of Bihar 2012). As one of the world's "neglected diseases," kala-azar may be prevented with a little investment in health promotion and education. However, in the Indian state of Bihar, it causes severe disease, lethargy, and death. According to Bora (1999), the incidence of kala-azar infections is among the highest globally. According to the World Health Organization (WHO), kala-azar has the potential to infect 350 million people in 88 countries, with an actual illness rate of roughly 500,000. An



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estimated half a million people in India are at danger, since the country has one of the highest case counts (over 20,000) and one of the highest fatality rates (approximately 200 per year). A great deal more is believed to have transpired. Bihar has been the most afflicted state with 33 endemic districts. According to the World Health Organization (WHO) in 2012, this illness is prevalent in adjacent states of West Bengal (ten districts impacted), Jharkhand (five districts endemic), and Uttar Pradesh (four districts affected). Mishra (2009) states that 90% of these patients are impoverished and reside in rural Bihar. Many of these patients come from low-income backgrounds and lack formal education or are illiterate. Nearly two-thirds of kala-azar patients are female and children, and among wage workers, disease causes a five-month loss of employment (2012).

Significant health indicators that might reveal a state's health status include crude birth rate (CBR), crude death rate (CDR), total fertility rate (TFR), infant mortality rate (IMR), and maternal mortality ratio (MMR). You may see the specifics in Table 2. Bihar had a CBR of 28.5 per 100,000 in 2009, which was higher than the national average of 22.5 per 100,000; however, the state's CDR was somewhat better. The fact that Bihar has lower infant mortality and higher birth rates than the rest of the country is the primary reason for the dramatic increase in the state's population. In 2009, Bihar's infant mortality rate (IMR) was 52 per 1,000 live births, which was similar to the national average of 50 per 1,000 live births, despite the state having the lowest literacy rate and per capita income. In 2009, India's IMR was 50, down from 58 in 2005. There was a much rapid decline in Bihar's IMR from 2005 to 2009, when it dropped from 61 to 52. As a whole, India's Maternal Mortality Ratio (MMR) decreased from 254 in 2004–06 to 221 in 2007–09, while the decline in Bihar was far larger, dropping from 312 to 261. Compared to the national average, Bihar's Total Fertility Rate is much lower. The average number of children a woman is predicted to have throughout her reproductive years is represented by this rate. The 2009 Sample Registration System (SRS) TFR for Bihar was 3.9, which was higher than the national average of 2.6. Bihar still maintains India's highest TFR, despite a decline from 4.3 in 2004 to 3.9 in 2009. Some say that the low TFR rate of 1.7% in Kerala, together with the state's high literacy rate and human development, is responsible for this success, particularly among women.





**Table 2. Chosen Health Metrics for Bihar and India**

S. No.	Item	India	Bihar	Source
1	Unprocessed Birth Rate (per 1,000)	22.5	28.5	SRS 2009
2	Body Fat Percentage (per 1,000)	7.3	7.0	
3	Fertility Rate as a Whole	2.6	3.9	
4	Rate of Infant Death (per 1,000)	50	52	
5	Mothers' Death Rate (per 100,000)	212	261	SRS 07-09

While 46% of children in India suffer from malnutrition, over 58% of these cases happen in the state of Bihar. Eighty percent of children under five suffer from malnutrition, which worsens the issue. It ranks top in the country among women of reproductive age, with over two-thirds of the female population suffering from malnutrition.<sup>6</sup> There are several reasons why childhood malnutrition is so common in Bihar. Problems include exorbitant healthcare prices, an absence of affordable medications, inadequate community workers, and unhealthy diets are just a few examples. Malnutrition rates and subpar nursing care could be influenced by cultural practices like childbearing at a young age. Part one (Table 1) shows that women's literacy and awareness levels are crucial to these factors. The female literacy rate is the lowest in the nation in Bihar as well.

The third wave of the National Family and Health Survey (NFHS) found that just 28.9% of Bihar people utilize modern contraception, compared to 48.5% of Indians. (Take a look at the third table). Despite having one of India's worst performing economies, the state of Tamil Nadu has a 60% greater prevalence of contraceptive use than the rest of the country. Due to a lack of knowledge about various forms of birth control, women with lower levels of education and awareness are more prone to have multiple pregnancies. Their high rate of pregnancy may be due in part to this. Modern techniques of birth control are directly linked to Bihar's lowest level of female literacy in India.



The District Level Household Survey (DLHS-3, Government of India 2008) found that when compared to the national average, a number of essential health indicators in Bihar are worrisome. Among Bihari women, literacy was poor in the early years; 46% of them were married before the age of 18 and 64% of those married women could not read or write. Most married girls under the age of 18 do not have a school education, so they are unaware of the health risks they confront; this compounds the problem of Bihar already having the lowest female literacy rate in India. This leaves them wide open to potentially deadly diseases. Only 37% of Bihari women got their needs satisfied, and even fewer (31% used some measure) to avoid unintended births. In the state, only 4% of pregnant women had a full anatomy and physiology exam; 26% received two scans, and 69% got none. Only 27.7% of births took place in hospitals, and only 41% of Bihari's children aged 12–23 months had received all of the necessary vaccines. Women are at much higher risk for serious health complications due to the information gap. Among women, only 39.8% had heard of sexually transmitted infections (STIs), and only 29.5% had thought about HIV/AIDS. Due to its high rate of return migration, Bihar is one of the states most vulnerable to HIV infection. The rationale for this is because several Biharis seek out employment possibilities outside of the state and then return there. Bihar is among the states with the second-highest number of internal migrants, only behind Uttar Pradesh, according to the Government of India (2011) and 2001. Naco in 1911. Because most women in Bihar do not know much about STDs like HIV/AIDS, the risk of contracting one is much greater for migrant workers and their families. Both the literacy rate and the educational opportunities are quite poor.

**Table 3.** Current Methods of Contraception Utilization: States and India (NFHS-3)

	Female Sterilization	Any Modern Spacing Method	Total (any modern)
India	37.3%	10%	48.5%
Bihar	23.8%	4.2%	28.9%
Tamil Nadu	55%	4.6%	60%

The national-level Coverage Evaluation study examined a number of important indicators included in the DLHS-2 and DLHS-3 surveys (Government of India 2009a). The health indicators for



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mothers and children in Bihar improved somewhat to significantly, as seen in Table 4. Results from Bihar remain well behind the national average, despite the fact that the metrics have been showing improvement over the last several years. Although the majority of pregnant women in Bihar only had one session for antenatal care (ANC), more than 80% of them received some kind of ANC. Not at all, when put next to the recommended schedule of three ANC, two TT injections, and one hundred iron folic acid (IFA) tablets. Only 4.5% of pregnant women in Bihar had complete ANC treatment, which is far lower than the national average of 26.5%. Institutional delivery is a key factor in the decrease in maternal and newborn death rates, and Bihar stands well behind the rest of the nation in this regard. Hospital births are chosen by over half of the expectant women in Bihar. For some women, the inaccessibility or high cost of medical facilities forces them to give birth at home, aided by traditional birth attendants or expert birth attendants. Both the mother and the newborn might have issues if an emergency were to occur during a home birth, but this is quite rare. The vaccination rate for children between the ages of 12 and 23 months has also increased. Almost half of the state's young people have had the shots they need to avoid dangerous illnesses. Important indicators for gauging a state's health include the proportion of the population that uses or has access to toilets for defecation. This helps to reduce the spread of infectious illnesses. A major concern with public defecation is the transmission of potentially deadly bacterial infections. Instances when cruel behaviors pollute open water sources or bring human waste into food chains are particularly problematic since they may cause human sickness. The DLHS-3 data shows that just 17% of the Bihari population has access to indoor toilets, meaning that the other 67% have to do their business in the open. Even though the number of individuals utilizing toilet facilities in the state climbed to 24% between 2007 and 2008 (Table 5), the most recent census data (Government of India 2011) shows that 35% of the population still defecates in the open. This is in sharp contrast to the national average of 50%.<sup>7</sup> In densely populated regions, such as urban slums along railway lines, places with open water sources, industrial and urban clusters where migrant workers and their families live in temporary dwellings, etc., open defecation is a major public health concern. Such cases are very concerning.



**Table 4. Here are a few measures of mother and child health in Bihar and India, compared side by side.**

Key Performance Markers	India	Bihar	India	Bihar	India	Bihar
Mothers who were given an ANC (percentage)	73.6	31.4	75.2	59.3	89.6	84.3
Mothers who visited three or more ANCs (%)	50.4	16	49.8	26.4	68.7	33.8
The percentage of mothers who received full ANC is	16.5	4.3	18.8	4.6	26.5	4.5
Institutional distribution rate	40.9	18.8	47.0	27.7	73%	48.3
Vaccination rates for children aged 12–23 months	45.9	20.7	54.0	41.4	61.0	49

Given Bihar's high population density (1102 persons per square kilometer) and poor toilet facility availability, the state's high newborn death rate due to diarrhea is worrisome. Children less than five account for about 25% of all fatalities caused by diarrhea worldwide. One hundred fifty thousand Indian children out of six hundred thousand died in 2011 from diarrhea or severe gastroenteritis, according to the Indian Institute of Health Statistics. The Bihar Health Society reports that newborn diarrhea is a leading cause of illness and mortality in the state of Bihar.

## Conclusion

The public health care delivery system in Bihar must be conveniently accessible, inexpensive, and readily available to the general people given the state's terrible public health. Second, most individuals don't know much about community health issues, which is a major problem since women are often the ones who take care of the most vulnerable members of society. This is more common in women than in males. Given that men often decide on the family budget and medical care (in terms of seeking it or not) and treatment type, concerns over men's lack of knowledge are reasonable. The National Family Health Survey-3 (NFHS-3) found that, on average, very few dads were given information on maternal care if their children were younger than three. Even fewer women were informed about the significance of giving birth in a medical institution, and only one-



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third of those women followed the advice about receiving enough nourishment throughout pregnancy. There is a strong correlation between a community's level of education and its ability to address and prevent health problems. People in areas with lower educational attainment are more likely to be uneducated when it comes to public health. This has the potential to increase the prevalence of avoidable illnesses.

This proportion is anticipated to rise in future censuses, since Bihar is already home to about 10% of the nation's population, and its population is growing faster than that of other states. The state of Bihar is therefore in a particularly vulnerable situation, as its poor performance on several socioeconomic indicators will impact national development indices for some time. India is expected to have more people, better education, healthier people, and more wealth than ever before. However, in order for lagging states like Bihar to thrive and see comparable regional growth, they must be given their fair share of chances, investment, and innovation. When a big growth in the population doesn't drain resources but instead makes more available for highly educated individuals, who can then contribute to the development of their home states and the country overall, opportunities will present themselves. Education, food security, health, sanitation, water, and other amenities should be expanded for all people, regardless of gender, caste, religion, or language, according to Amartya Sen (1999).

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