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An Overview of Health Economics of Maharashtra

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Abstract:

This research paper provides a comprehensive analysis of health economics in Maharashtra from 2013 to 2023, focusing on the accessibility of healthcare, spending patterns, and the challenges faced in both urban and rural areas. It uses secondary data from reliable sources such as government health reports, economic surveys, and national health studies to offer a detailed understanding of the state's healthcare system and its economic dynamics. The study highlights significant differences in the distribution of healthcare facilities between urban and rural regions, with urban areas often having better access. By analysing principles of health economics, the research identifies challenges in Maharashtra's healthcare system. It highlights opportunities for improvement, such as strengthening primary healthcare infrastructure in rural areas and developing targeted healthcare programs for different socioeconomic groups. These steps could help bridge the gaps in healthcare access and quality. This study provides valuable insights for policymakers, healthcare administrators, and researchers. The study concludes with recommendations for addressing the identified challenges, improved resource allocation strategies, and enhanced healthcare awareness programs. Overall, it provides a strong foundation for future planning and policymaking in Maharashtra and other regions facing similar healthcare challenges. It emphasizes the importance of equitable healthcare development and efficient resource use to ensure better health outcomes for all.

Keywords: Health Economics, Healthcare Accessibility, Socioeconomic Disparities, Healthcare Expenditure, Maharashtra Healthcare System, Urban-Rural Healthcare Gap

Introduction:

Maharashtra, is one of India's second most populous, third-largest economically advanced states, contributing the highest GDP, most industrialized and urbanized states but faces distinct challenges in its healthcare sector. Urban areas benefit from better healthcare infrastructure and resources, while rural regions often struggle with inadequate facilities and limited accessibility. Socioeconomic disparities further widen the gap in healthcare access and affordability. The study examines key aspects of health economics, such as the distribution and accessibility of healthcare facilities in urban and rural areas, and the challenges that hinder equitable healthcare delivery. It provides valuable insights for policymakers, healthcare administrators, and researchers, offering actionable recommendations to promote balanced development in the healthcare sector and ensure better health outcomes for all sections of society.

Objectives:

1. To understand the concept of Health Economics
2. To analyse health outcome indicators of Maharashtra
3. To explore current availability of health care services in Maharashtra.
4. To identify key challenges and opportunities in improving healthcare economics in Maharashtra.

Review of literature:

Guinness, L., & Wiseman, V. (2011) [1] explains a structured approach to health economics, organized into six main sections: economics and health economics, demand and supply, markets, healthcare financing, economic evaluation, and equity in their book. The contents reflect a comprehensive coverage of fundamental concepts, from basic market models to complex issues of universal healthcare coverage.

Apergis, N., & Padhi, P. (2013)[2] studies how health spending and economic growth vary across Indian states. Using special statistical methods, it examines differences in growth and health expenses between states. The findings show that states fall into different groups based on their spending and growth patterns. The paper emphasizes the need for different policies for different regions to reduce inequality and improve economic growth through health investments.

Baru, R., Acharya, A., Acharya, S., Kumar, A. K. S., & Nagaraj, K. (2010)[3] look at the differences in access to health services across India, focusing on how caste, social class, and location affect healthcare access. They show that there are ongoing problems in the availability, cost, and use of healthcare services, made worse by social, economic, and historical factors. The paper examines both public and private healthcare systems and suggests ways to fix these inequalities through targeted policy changes and better public health facilities.

Kansal, S., & Singh, R. (2021)[4] explain how health economics and policies have developed in India, focusing on the country's goal of "Health for All." The study looks at different aspects including how healthcare is analyzed, national health strategies, and how India dealt with pandemics (especially COVID-19). The research points out both city and rural healthcare challenges, emphasizing that while there has been good progress in reducing illness and death rates through government programs, the healthcare delivery systems still need improvement.

Keskar, S. A., & Kombde, S. T. (2024)[5] examines health expenditure trends in Maharashtra from 2010 to 2023, noting fluctuations and a notable increase during the COVID-19 pandemic. However, healthcare spending in the state remains

[1] Introduction to Health Economics. McGraw-Hill Education.

[2] Health expenses and economic growth: Convergence dynamics across the Indian States. *International Journal of Health Care Finance and Economics, 13*(3/4), 261–277.

[3] Inequities in Access to Health Services in India: Caste, Class, and Region. *Economic and Political Weekly.*

[4] An Overview of Health Economics and Health Policies in India. *Journal of Indian Research, 9*(1-2), 58–68.

[5] Government health expenditure in Maharashtra: An analytical study. *GAP Bodhi Taru - A Global Journal of Humanities*, 7, 255-258.

below 1% of its GDP. Key challenges include regional disparities, a shortage of specialists, and dependence on contractual practitioners, weakening the public health system's efficiency.

Research Methodology:

This Study is based on secondary data collection method and it is descriptive research design. The information collected through various research articles, and the Ministry of Health and Family Welfare, Government of Maharashtra and RBI websites, Directorate of Health Services, Sample Registration Scheme Bulletin, Office of Registrar General of India for this study.

Limitations of the study:

This study is based on Secondary sources so it is not able to cover those primary aspects of Health Economics. Also, it is about a limited period of 2013 to 2023 so it does not give information about the prior period. There is some information regarding Health Economic Indicators that is not available on official websites, reports, etc. hence this study gives information on available data.

Concept of Health:

According to the World Health Organization (WHO), health is a "State of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity." Health is a unity and harmony within the mind, body and spirit, which is unique to each person. Health is a multifaceted concept. The preamble to the Constitution of the World Health Organisation (WHO) states that *"The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion &political belief, economic or social condition*[6]*.* Our culture teaches us that, "Health is Wealth" The health of a nation is important for development, growth and internal stability. According to Article 21 of the Indian constitution, the State should ensure good health and nutritional well-being of its entire people. Entry 6 in the State List (List II) in the Seventh Schedule of the constitution of India reads that "Public health and sanitation, hospitals and dispensaries in the State List. Hence, India designates public health as a responsibility of its states. Every Indian citizen is entitled to health as a fundamental right.

Concept of Health Economics:

The field of health economics examines how limited healthcare resources are distributed and utilized. It encompasses studying healthcare services, their economic implications, and how health-related benefits are shared across different societal groups. Health economics applies economic principles and methodologies to healthcare sector analysis. Health Economics is defined as "*The application of the theories, concepts, methods and techniques of economics to the health sector*".

It is, thus, concerned with such matters as the allocation of resources between various health-promoting activities, the quantity of resources used in health services delivery; the organization and financing of health service institutions, evaluates how effectively resources are distributed and used for health-related purposes, and analyzes how various health services -

[6] The preamble of the Constitution of the World Health Organisation (WHO)

preventive, curative, and rehabilitative - impact both individuals and society as a whole. Thus, health economics is the application of the principles of economics to the healthcare sector.

Health Economics: Micro-Economics and Macro-Economics Viewpoint:

Health economics combines microeconomic and macroeconomic perspectives to analyze healthcare systems and their societal impacts.

- From a microeconomic perspective, health economics investigates individual decision-making behaviors among patients, healthcare providers, and insurers. This includes analyzing how patients select medical services based on costs and benefits, how doctors decide on treatments, and how insurers set coverage policies and premiums. It also examines concepts such as the demand and supply of healthcare services, market efficiency, and the effects of information asymmetry between providers and patients.
- From a macroeconomic perspective, health economics addresses broader systemic issues and their connections to the economy. This involves studying healthcare's role in GDP, national healthcare expenditure patterns, and government policy's influence on healthcare access and quality. It also evaluates the impact of healthcare spending on economic growth, employment in the sector, and national public health outcomes. Additionally, it assesses the effects of governmental healthcare programs on fiscal policy and national debt.

Integrating these micro and macro perspectives enables policymakers and healthcare administrators to create holistic strategies to enhance healthcare delivery, control costs, and maintain economic sustainability.

Health Outcome Indicators:

These indicators collectively provide information about the population's health status, healthcare system effectiveness, and future workforce potential, which are essential for economic planning and resource allocation. They also help measure the success of public health interventions and identify areas where investment is needed to improve economic productivity.

- **Crude Birth Rate (CBR)**: It is defined as the Number of live births per 1,000 population in a given year. It helps to predict future workforce size and dependency ratios, and also it affects economic planning and social service needs.
- **Crude Death Rate (CDR)**: It is defined as the number of deaths per 1,000 population in a given year. It indicates population health status and healthcare system effectiveness, influencing labour force productivity and healthcare costs.
- **Infant Mortality Rate (IMR):** Number of infant deaths (under one year) per 1,000 live births in a given It serves as a key indicator of healthcare quality and social development, reflecting a country's investment in maternal and child health services.
- **Total Fertility Rate (TFR):** Average number of children born to a woman over her reproductive lifetime (ages 15-49) It helps to forecast population growth and age structure, crucial for

planning economic policies, education systems, and social services.

Health Outcome Indicators of Maharashtra:

This Research paper includes some health outcome indicators that show the situation of Rural and Urben Maharashtra in Healthcare. They are as follows:

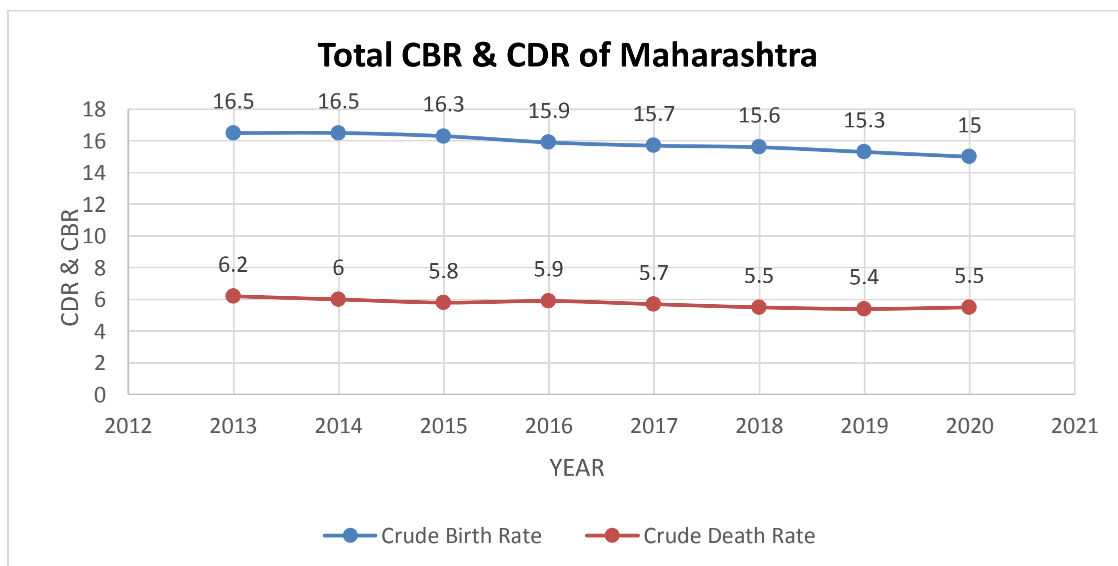
Crude Birth Rate and Crude Death Rate:

Table 1: Crude Birth Rate and Crude Death Rate of Maharashtra (per 1000)

Year	Crude Birth Rate			Crude Death Rate		
	Rural	Urban	Total	Rural	Urban	Total
2013	17.2	15.4	16.5	7.1	5	6.2
2014	16.8	16	16.5	6.8	4.8	6
2015	16.6	15.9	16.3	6.6	4.7	5.8
2016	16.3	15.5	15.9	6.9	4.6	5.9
2017	16	15.4	15.7	6.6	4.6	5.7
2018	15.9	15.2	15.6	6.3	4.5	5.5
2019	15.6	15	15.3	6.2	4.4	5.4
2020	15.3	14.6	15	6.2	4.6	5.5

(Source: Sample Registration Scheme Bulletin, Office of Registrar General of India**)**

Graph 1: Total CBR & CDR of Maharashtra



(Source: Author's calculations from Sample Registration Scheme Bulletin, Office of Registrar General of India of various years, Government of India)

The CBR decreased from 16.5 per 1,000 population in 2013 to 15.0 in 2020, showing a steady reduction in birth rates. Rural areas consistently maintained higher birth rates compared to urban areas throughout this period, with rural CBR decreasing from 17.2 to 15.3, while urban CBR declined from 15.4 to 14.6. The consistent decline in both CBR and CDR across Maharashtra indicates that health outcomes are improving.

The CDR showed positive trends, declining from 6.2 in 2013 to 5.5 per 1,000 population in 2020. There was a marked urban-rural disparity in death rates, with rural areas experiencing

consistently higher CDRs (ranging from 7.1 to 6.2) compared to urban areas (ranging from 5.0 to 4.6).

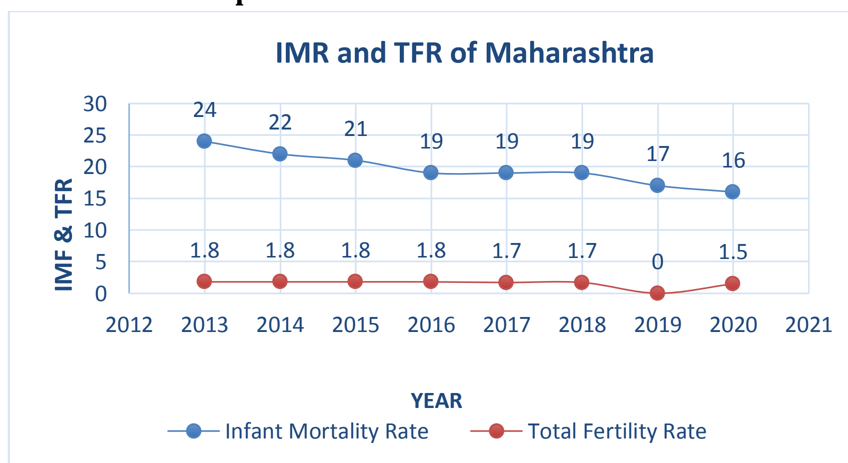
Infant Mortality Rate and Total Fertility Rate:

Table 2: Infant Mortality Rate and Total Fertility Rate of Maharashtra (per 1000)

Year	Infant Mortality Rate			Total Fertility Rate		
	Rural	Urban	Total	Rural	Urban	Total
2013	29	16	24	1.9	1.6	1.8
2014	27	14	22	1.9	1.7	1.8
2015	26	14	21	2	1.6	1.8
2016	24	13	19	1.9	1.6	1.8
2017	23	14	19	1.8	1.5	1.7
2018	24	14	19	1.8	1.5	1.7
2019	22	12	17	N.A.	N.A.	N.A.
2020	20	11	16	1.6	1.4	1.5

(Source: Sample Registration Scheme Bulletin, Office of Registrar General of India**)**

Graph 2: IMR and TFR of Maharashtra



(Source: Author's calculations from Sample Registration Scheme Bulletin, Office of Registrar General of India of various years, Government of India)

Maharashtra showed significant improvements in both Infant Mortality Rate (IMR) and Total Fertility Rate (TFR) from 2013 to 2020, which shows that healthcare outcomes are enhanced. The IMR shows a substantial decline from 24 deaths per 1,000 live births in 2013 to 16 in 2020, representing a 33% reduction over seven years. A notable urban-rural disparity existed throughout this period, with rural areas experiencing considerably higher infant mortality (declining from 29 to 20) compared to urban areas (decreasing from 16 to 11). This gap highlights the continuing challenges in rural healthcare accessibility and quality.

The Total Fertility Rate (TFR) showed a moderate decline from 1.8 children per woman in 2013 to 1.5 in 2020, falling below the replacement level fertility rate of 2.1. Similar to IMR, there was a consistent urban-rural difference in TFR. Rural areas maintained higher

fertility rates (decreasing from 1.9 to 1.6) compared to urban areas (declining from 1.6 to 1.4). There is no information available regarding TFR in 2019. These trends suggest improved maternal and child healthcare services, better family planning awareness, and increased access to healthcare facilities, particularly in urban areas. However, the persistent rural-urban gap in both IMR and TFR indicates that targeted interventions is needed in rural regions.

Availability of health care services in Maharashtra: (up to 2023)

Maharashtra's health care services are divided into a three-tier system as follows:

Primary Level: At this level, basic healthcare services are provided.

- Sub-centres: It offers counselling for mothers and children, family planning, nutrition advice, vaccines, and help with common illnesses.
- Primary Health Centres (PHCs): PHCs have outpatient services, a 6-bed ward for patients to stay, emergency care, basic surgery facilities, labs for tests, and medicines.
- Community Health Centres (CHCs): CHCs serve as reference centres for 4-5 PHCs, covering 80,000 to 120,000 people.

Secondary Level: These hospitals offer more advanced care than primary centres and are equipped to handle more serious medical conditions. They provide 24-hour medical services.

- Sub-district hospitals
- District hospitals

Tertiary Level: These are the most advanced hospitals with specialized medical care. They have modern equipment and specialists to treat complex medical conditions. Medical colleges also train new doctors while providing healthcare services.

- Medical college hospitals
- Super-specialty hospitals

This three-tier system is designed to provide comprehensive healthcare, starting from basic services at the local level to specialized treatment at major hospitals. Each level is connected, with simpler cases handled at primary centres and more complex cases referred to higher levels as needed.

District-wise Health Care Services in Maharashtra:

Maharashtra is divided into six administrative divisions and they are: Konkan, Nashik, Pune, Chhatrapati Sambhajinagar, Amravati, and Nagpur. There are a total of 10,748 Sub-Centres, 1,913 Primary Health Centres, 95 Sub-District Hospitals, 19 District Hospitals, and 364 Rural Hospitals available in Maharashtra and serving its diverse population across urban and rural areas. The extensive network of Sub-Centres (10,748) across Maharashtra suggests a strong foundation for primary healthcare delivery at the grassroots level.

The distribution of healthcare facilities shows significant regional disparities. Pune division leads with the highest number of healthcare facilities, having 2,151 Sub-Centres and 405 Primary Health Centres, followed closely by the Nashik division with 2,125 Sub-Centres and 392 Primary Health Centres. Strong healthcare infrastructure is available in these regions. The Chhatrapati Sambhajinagar division shows good coverage of Sub-District Hospitals with 21 facilities, the highest among all divisions. The Amravati division appears to have relatively fewer

facilities with only 1,399 Sub-Centres and 236 Primary Health Centres. The number of District Hospitals (19) across the entire state seems inadequate considering Maharashtra's large population. There's also a notable imbalance in the distribution of Sub-District Hospitals, with some divisions like Amravati having only 11 facilities compared to Chhatrapati Sambhajinagar's 21 Sub-District Hospitals.

Table 3: District Health Care Services available in Maharashtra up to 2023

Division	District	Sub-Centers	Primary Health Centers	Sub-District Hospitals	District Hospitals	Rural Hospitals
Konkan	Brihan Mumbai	-	-	-	-	0
	Thane	191	33	3	1	6
	Palghar	314	46	3	0	9
	Raigad	288	54	6	1	8
	Ratnagiri	378	68	3	0	8
	Sindhudurg	248	38	3	0	7
	Total	**1,419**	**239**	**18**	**2**	**38**
Nashik	Nashik	592	112	6	1	22
	Dhule	232	43	2	1	6
	Nandurbar	293	61	2	1	11
	Jalgaon	443	78	3	0	18
	Ahmednagar	565	98	3	1	22
	Total	**2,125**	**392**	**16**	**4**	**79**
Pune	Pune	542	101	5	1	19
	Satara	414	84	2	1	16
	Sangli	348	65	2	0	13
	Solapur	434	77	3	0	14
	Kolhapur	413	78	4	0	16
	Total	**2,151**	**405**	**16**	**2**	**78**
Chhatrapti Sambhajinagar	Chhatrapati Sambhajinagar	279	51	3	1	10
	Jalna	223	44	1	1	9
	Parbhani	215	37	2	0	6
	Hingoli	134	24	2	1	3
	Beed	296	52	3	1	10
	Nanded	377	69	4	1	13
	Dharashiv	215	44	5	0	5
	Latur	252	50	1	0	11
	Total	**1,991**	**371**	**21**	**5**	**67**
Amravati	Buldhana	280	52	1	1	13
	Akola	179	31	1	0	5
	Washim	155	27	1	1	6
	Amravati	339	59	5	1	9
	Yavatmal	446	67	3	0	14
		1,399	**236**	**11**	**3**	**47**
Nagpur	Wardha	183	31	2	1	8
	Nagpur	316	53	2	0	10
	Bhandara	193	33	2	1	7
	Gondia	253	40	1	0	10
	Chandrapur	342	65	3	0	10
	Gadchiroli	376	48	3	1	10
	Total	**1,663**	**270**	**13**	**3**	**55**
	Maharashtra State Total	**10,748**	**1,913**	**95**	**19**	**364**

(Source: Economic Survey of Maharashtra 2022-23)

Challenges and opportunities to improve health economics in Maharashtra:

Challenges:

- Maintaining consistent healthcare quality across all facilities, especially in rural areas, remains a significant challenge.
- Rural areas show consistently higher mortality rates and lower healthcare access compared to urban areas, creating an uneven distribution of health resources and outcomes.
- Despite having numerous facilities, their distribution is uneven across divisions, with some areas like Amravati having significantly fewer healthcare centres than others.
- Limited number of district hospitals (only 19) for Maharashtra's large population indicates inadequate secondary healthcare infrastructure.

Opportunities:

- Implementation of telemedicine and digital health records could improve healthcare access in remote areas and enhance service delivery efficiency.
- Collaboration with private healthcare providers could help bridge infrastructure gaps and improve service quality, especially in underserved areas.
- Strengthening primary healthcare and preventive medicine programs could reduce the burden on secondary and tertiary facilities.
- Expanding medical education facilities and training programs could address the shortage of healthcare professionals and improve service quality.

Conclusion:

Maharashtra's healthcare system reveals a complex combination of progress and challenges. The study highlights significant disparities in healthcare accessibility, resource allocation, and health outcomes between urban and rural areas. There is an urban-rural gap in both CBR and CDR suggests better healthcare access and living conditions in urban areas. The overall declining trends in both rates indicate improving healthcare services, better medical facilities, and increased health awareness across the state. However, the persistent rural-urban divide highlights the need for strengthened healthcare infrastructure and services in rural Maharashtra. Maharashtra's declining IMR and TFR trends indicate improved healthcare outcomes, but persistent rural-urban disparities highlight the need for enhanced rural healthcare infrastructure and services to ensure equitable health development. The rural healthcare coverage, while extensive in numbers, may still face challenges in terms of quality of services, accessibility, and resource allocation. To achieve sustainable and equitable healthcare outcomes, Maharashtra must focus on balanced resource allocation, enhanced rural healthcare services, and effective policy implementation.

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