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GROWTH AND DEVELOPMENT OF THE INDIAN ECONOMY IN THE 21ST CENTURY:TOWARDS ECONOMY 4.0

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GROWTH AND DEVELOPMENET OF THE INDIAN ECONOMY IN THE 21ST CENTURY : TOWARDS ECONOMY 4.0

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Growth and Development of the Indian Economy in the 21st Century: Towards Economy 4.0

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Growth and Development of the Indian Economy in the 21st Century: Towards Economy 4.0

Preface

The Indian economy has undergone remarkable transformation in the 21st century, emerging as one of the fastest-growing economies in the world. With the advancement of globalization, technological innovation, and policy reforms, India has steadily moved from a traditional economy toward a knowledge-driven and digitally enabled economic system. The concept of Economy 4.0 reflects this transition, where digital technologies, automation, artificial intelligence, and data-driven decision-making play a crucial role in shaping economic activities and development.

In recent decades, India has experienced significant growth across various sectors such as manufacturing, services, agriculture, and digital infrastructure. Government initiatives aimed at economic reforms, financial inclusion, digitalization, and industrial development have contributed to strengthening the country's economic foundation. Programs such as Digital India, Make in India, and Startup India highlight India's commitment to building a modern and innovation-driven economy.

The emergence of Economy 4.0, inspired by the principles of Industry 4.0, emphasizes the integration of advanced technologies such as artificial intelligence, big data analytics, the Internet of Things (IoT), and automation into economic systems. This transformation is reshaping production processes, financial systems, governance, and employment patterns, creating new opportunities while also presenting significant challenges.

This work aims to explore the growth and development of the Indian economy in the 21st century and analyze the country's journey toward Economy 4.0. It examines the structural changes in key sectors, the role of technological innovation, policy initiatives, and the impact of digital transformation on sustainable economic growth. Understanding these developments is essential for policymakers, researchers, academicians, and students who seek to comprehend the evolving dynamics of India's economic landscape.

Dr. R. Rajesh Kanna: Dr.A. Abdulraheem: Dr. M. Dillip Anand: Dr. A. Krishnan: Dr. N Shanmugasundaram.

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ROLE OF MEDICAL TOURISM IN ECONOMIC DEVELOPMENT OF TAMILNADU: AN OVERVIEW

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Abstract: India is a major player in the global travel industry, especially medical tourism. It has a lot of surgical experience, wellness treatments and low expenses, thanks to outstanding private healthcare facilities and government programs such as "health care visa." Tamil Nadu's economy is quickly industrializing, thanks to sectors such as textiles and chemicals, and it government's emphasis on infrastructure helped it come in third place nationally in 2011. Tamil Nadu is a popular place for medical tourists because it is affordable, has no waiting lists, offers excellent personalized care, and combines advanced and traditional medicine. The state has a low inequality- adjusted HDI because of problems with malnutrition and sanitation, but it has great health indicators, such as a longer life expectancy and a much lower IMR and MMR, thanks to its strong health system. Tamil Nadu is a good example of how to quickly improve health, but Kerala is still the best place for human development overall. It has consistently led in core mortality indicators because it has invested in universal female literacy.

Key words: medical tourism, cost-effectiveness, high-quality personalized care, health indicators, Community Impartiality

1.1 Introduction

Travel is a worldwide activity, and in times past, the tourist industry and medical tourism industries had problems because they were so easy to attack. Even Nevertheless, the travel industry is still an important part of the economy and has a lot of room to grow around the world, especially in developing countries [1]. Modern tourists have high standards and are always looking for new experiences, adventures, and ways of living. This drives the tourism practices and paradigms to keep changing. Medical tourism is a promising and increasing concept that suits current needs [2]. India has grown into a major participant in this industry by delivering a wide range of specialized amenities and staying ahead of the competition around the world. Excitement, wildlife, cultural and historical attractions, nature, and pilgrimage are only few of the types of tourism that the country offers.

People all across the world know India for its wellness therapies and surgical skills. Medical tourists look for high-quality medical institutions that often offer extra services or services that are all in one place. These coordinated services, which are only available in the hotel industry, set medical tourism apart from regular travel. Travel facilitators typically offer medical tourists all-inclusive packages that include everything from transportation and lodging to leisure activities

and the medical treatment itself. Profitable hospitals that offer high-quality medical care and work well with the lodging industry are very important to the medical tourism industry [3].

Private healthcare facilities are actively promoting their sophisticated medical skills and capacities in the global market. The public tourist sector, commercial enterprises, and healthcare providers are all working hard to grow this fast growing worldwide sector.

1.2 Tamil Nadu's Economy and Infrastructure

Tamil Nadu's economy is mostly based on farming, and almost three-quarters of its people rely on farming for their living. Even though this sector is quite important, it only makes up approximately three percent of the state's overall economic output. The original language doesn't say what the most significant crop is, just calls it "crop." Tamil Nadu is also recognized for growing other key cash crops, such as sugarcane, peanuts, seeds for oil production, cotton, and bananas. The western part of the Ghats hills are known for growing valuable plantation crops like tea, cinnamon, black pepper, ginger, and various other spices [4]. Tamil Nadu has become one of the more industrialized states in India, in addition to being a major agricultural state. It is a significant national producer of important industrial goods such as cement, chemical fertilizers, and other types of chemicals. The textile and leather-based industries are also very important since they give thousands of educated people in the state jobs.

The Tamil Nadu government always puts building up either industrial and external structures at the top of its list of things to do. It sets aside enough money in its annual budgets to keep its infrastructure in good shape and keep making it better. Because of this, Tamil Nadu is known to be one of the a few Indian states with a pretty strong infrastructure foundation. A report from the Comparative Infrastructure Development Index that was looked at and published in March 2011 (from Mumbai) said that Tamil Nadu had the third best infrastructure of all Indian states.

Table 1.1 shows how seven Indian states compare to each other on a specific Development of Infrastructure Index. The highest attainable rating for this group of states is 1000 (or 100%). This overall score is what the Index Rating and percent (%) columns depend on. Punjab is well in the lead with an average of 191.4 (19.14%). It has a big lead over Kerala, the state in second place (191.4 - 157.1 = 34.3 percent). According to the ranking, Tamil Nadu (144.0) and Gujarat (141.3) are closely ranked in the second tier. All of these states have made good progress in building up their infrastructure. Maharashtra (123.4) as well as Karnataka (109.5) are the two states in this category that are the least successful. These states are important for business, however their infrastructure ratings are the lowest of the ones on the list. The top three states—Punjab, Kerala, and Tamil Nadu—together make up 492.5 points or 49.25% of the overall index score for this category. This means that almost fifty percent of infrastructure development that this index measures is happening in these three states.

Table 1.1 States with Infrastructure Growth Index Rank

Rank	State Name	Index Rank (Score)	Percentage (%)
1	Punjab	191.4	19.14%
2	Kerala	157.1	15.71%
3	Tamil Nadu	144.0	14.40%
4	Gujarat	141.3	14.13%
5	Haryana	133.3	13.33%
6	Maharashtra	123.4	12.34%
7	Karnataka	109.5	10.95%
	Total	1000.0	100.00%

Source: Annual Report of Ministry of Tourism

1.3 Things That Make Tamil Nadu a Good Place for Medical Tourism

Tamil Nadu draws overseas patients for medical care and tourism for a number of important reasons:

Economic and logistical benefits: The main reason people go is because medical services and surgeries are cheaper. Numerous technologically advanced Tamil Nadu hospitals provide excellent care from highly trained doctors and cutting-edge facilities at a fraction of the cost of similar facilities in industrialized countries. The entire bill in India is usually less than what a patient would have to pay out of pocket in other countries, even if they don't have insurance. Patients get better right away when they get medical help. There are no long waiting lists or delays in the administration because of health coverage or doctor lack of availability [5]. Private airlines have made it easier and faster to get to Tamil Nadu. Cheap and reliable internet access and well-known communication services make it easier to talk to each other. Airfare firms make things even easier by offering all-inclusive packages that include the fees of airfare, lodging, and treatment. Within the state, it is easy to get specialize medications and drugs at lower prices than elsewhere. Quality of Care and Infrastructure: Indian doctors as well as medical professionals are known around the world for their high level of training and skill. Individuals of all ages get close, individualized treatment and monitoring. Corporate hospitals, especially in Chennai, have the latest technology and infrastructure to make sure that patients get the best care and diagnosis.

Policy and Holistic Offering: The Indian government promotes medical tourism by creating an exclusive "medical visa" group for patients and giving hospitals tax breaks. This is because they see the economic potential of this type of tourism. The state offers a one-of-a-kind mix of contemporary medical care and ancient treatments including Ayurveda, meditation, yoga, and naturopathy. Patients who are having simpler treatments can combine their medical journey with a vacation, as long as their doctor says it's okay. They can explore the region's fascinating past and diverse geography.

1.4 Tamil Nadu's economic outlook and health indicators

Tamil Nadu's tourist industry is focused on a few important areas, one of which is [i] preserving and maintaining the region's rich cultural legacy. [ii] Using new ways to promote the hotel sector, boosting international trade, and encouraging expansion within the hotel industry. [3] Making tourism an integrating economic force to help the state's GDP grow. [iv] Putting more emphasis on medical tourism and making the supporting amenities (peripheral services) such travel websites, internet booking platforms, and hotel/hospitality services better. [v] Building advanced communication networks to help the industry. We can figure out how much medical tourism is worth by looking at: [i] the volume of tourists from other countries and from the US who come to the US throughout time. [ii] The money that tourism brings in. The part of the budget that is set aside for tourist growth throughout the state.

1.5 Health and Social Fairness

Tamil Nadu's human development index, or HDI, is 0.544, which depends on financial status, schooling, and culture. Scores closer to 1 mean that the area is more developed. But when you take inequality into account, this HDI drops a lot to 0.396 [6]. Some problems that show inequality are: [i] lower ratings on the economic participation and control across economic resources facets (0.480 and 0.404, thereby) (Ministry of Women and Child Development, 2009). [ii] A lot of kids are malnourished, with about one-third of them not getting enough food. [3] Poor sanitation, since more than three-quarters of rural homes don't have access to latrines [7].

Tamil Nadu has achieved great strides in healthcare and human development despite these problems. For example, the average lifespan in the state at birth is 67 years for men and 69.75 years for women, which is higher than the national averages of 63.87 and 66.91 years, respectively [8]. This is a big step forward from the years 1941 to 1951, when men and women lived about 36

to 37 years. The rate of infant death (IMR) is 44 per one thousand live births, which is much lower than India's average of 63 and a big drop about that state's have IMR of 113 in the early 1970s [9]. [10] The state says that maternal care is quite good: 87.6% of all deliveries happen in a facility, 98% of women get prenatal care, and 90% get postoperative care. Tamil Nadu has a wide range of vaccinations, which include one hundred percent for polio, ninety-eight percent for premature babies tetanus, and ninety-two percent for the measles. The rates of main illnesses are 479 per person over tuberculosis and 70% per 100,000 persons for malaria. 1.35 percent of the population has HIV.

1.6 The Framework of Tamil Nadu's Health System

In India, the national, state, and municipal governments all share the responsibility for public health care. However, the state is mostly in charge of delivering those services. The central government pays for around a quarter of public health expenditure, while states and local governments pay for the other three-quarters. Health is really the state's job. The Central Government is in charge of health care in Union Territories that don't have legislatures. It also sets and keeps an eye on national health standards, arranges funding from outside sources, and pays for different programs that the states run. The list of concurrent activities [11] shows the fact that the central government and the states are in charge of the programs on it. The Central Council to earn the Welfare and Health of Families brings together people from all levels of government to work together to come up with goals and plans to earn the public health sector.

The family benefits program is carried out in Tamil Nadu by a system of both urban and rural centers, maternity clinics, and health posts. The organization's IEC (Information, Education, and Communication) division is in charge of propagating the modest family norm and different types of birth control. [ii] Carries out important public health initiatives, such as: [a] Services for the health of mothers and teenagers. [b] Vaccinating children against diseases that can be avoided. [c] Prevention of infectious illnesses such malaria, filaria, and Japanese encephalitis. [d] Getting rid of leprosy and controlling iodine deficient illness. [e] Stopping food adulteration, health checkups for schools, and health education for the whole community. [f] Collecting important information on births and deaths and keeping the environment clean. [g] Stopping and controlling waterborne infections such acute diarrhea, typhoid, and dysentery, as well as sexually transmitted illnesses like HIV/AIDS.

The Department of Medical Care and Community Health Services has a network of 32 District Headquarter Hospitals, 162 Taluk Medical centers, 79 Non-Taluk Health Centers, and 12 Dispensaries that offer clinical services. The Non-Taluk and Taluk health centers are the first places to send patients, whereas the District Headquarters Medical centers are the second places to send patients. This department is also in charge of initiatives for HIV, TB Prevention, Mental Health, as well as blood banks [12].

The Tamil Nadu Health Services Corp. Limited (TNMSC) was founded in January 1995. Its major job is to make sure that all government medical facilities have a steady supply of high-quality pharmaceuticals and medicines by streamlining the process of buying, storing, and distributing them. The Tamil Nadu Health and Transport Department (1959) is in charge of keeping Health Department Vehicles in good shape and safe. Its purpose is to keep vehicles from being out of service for maintenance as much as possible and to make sure that the fleet is used as much as possible to support health initiatives. The Directorate of Indian Medical Sciences and Homeopathy is in charge of traditional medical practices such Siddha, Ayurveda, Unani, Yoga, Naturopathy, and Homeopathy. Its goals are to deliver public health care by means of these systems and keep an eye on their research and education efforts [13].

1.7 Transportation and Benchmarking in Healthcare

People often judge how well the public healthcare system works by how easy it is to go to healthcare (physical infrastructure). The total number of sub- centers (SCs), primary healthcare centers (PHCs), as well as community-based health centers (CHCs), as well as the services they offer, are important transportation facilities that were looked at. Tamil Nadu's transportation and infrastructure services are compared to those of four advanced states (Gujarat, state of Karnataka, Kerala, Maharashtra) as well as four states that are developing (the states of Bihar, Odisha, the state of Maharashtra, and Uttar Pradesh) [14]. Table 1.2 compares Tamil Nadu's health indicators to the national average for All India. This shows how Tamil Nadu's public health was doing in and around 2013.

Table 1.2 Health Care Transportation Details and Benchmarking

Indicator Category	Tamil Nadu	All India	Performance Summary
Fertility & Population Growth			
Birth Rate (per 1000)	15.6	21.4	Much lower than the national average, which means that the population is growing more slowly.
Total Fertility Rate (TFR) (per woman)	1.7	2.4	Well below the substitute level of 2.1, which shows that the demographic transition was successful.
Mortality - Adult			
Death Rate (per 1000)	7.3	7.0	Slightly higher than the national average. This might be due to an older population structure (given the low birth rate).
Mortality - Child & Maternal			
Maternal Mortality Rate (MMR) (per lakh)	73	178	Drastically lower than the national average, indicating superior maternal healthcare and safety during childbirth.
Infant Mortality Rate (IMR) (per 1000)	21	40	Nearly half the national average, suggesting better postnatal and primary healthcare.
Under Five Mortality Rate (per 1000)	27	50	Nearly half the national average, confirming stronger child survival programs.
Neonatal Mortality Rate (NMR) (per 1000)	19 (2010)	33	Significantly lower, pointing to better care during and immediately after birth.
Longevity			
Life Expectancy at Birth (Overall)	68.9	65.8	Higher than the national average.
Female Life Expectancy	70.9	68.48	Females in Tamil Nadu live longer than the national female average.
Male Life Expectancy	67.1	64.16	Males in Tamil Nadu live longer than the national male average.

Source: computed

Table 1.4 Tamil Nadu vs. Kerala: Health Indicator Comparison

Health Indicator	Tamil Nadu	Kerala	Comparison Insight

Total Fertility Rate (TFR)	1.7	1.7	Equal: Both states had TFR well below the replacement level of 2.1, indicating advanced demographic transition.
Birth Rate (per 1000)	15.6	14	Kerala is Lower: Kerala generally has a slightly lower birth rate, reflecting a more mature demographic profile.
Infant Mortality Rate (IMR) (per 1000)	21	12	Kerala is Significantly Lower: Kerala's IMR is almost half of Tamil Nadu's, demonstrating a marginal but persistent lead in infant survival.
Under Five Mortality Rate (U5MR) (per 1000)	27	13	Kerala is Significantly Lower: Similar to IMR, Kerala maintains a substantial lead in child survival rates.
Maternal Mortality Rate (MMR) (per lakh)	73	53	Kerala is Lower: Kerala leads with a lower MMR, indicating superior maternal healthcare, though both are excellent compared to the All-India average (178).
Life Expectancy at Birth	68.9 (2010)	74.2	Kerala is Higher: Kerala's life expectancy is significantly higher for both males and females, a long-standing trend attributed to its excellent health and education systems.

Source: Computed

The comparison shows that Tamil Nadu as well as Kerala are both national leaders when it comes to health indices. In India, this is sometimes called a "Health Outlier" group. They have reached fertility rates on par with wealthy countries and have significantly reduced maternal and child death rates considerably lower than the national average [15]. The comparison, on the other hand, demonstrates that Kerala has a clear and persistent advantage in important mortality measures including IMR, U5MR, MMR, as well as Life Expectancy. Tamil Nadu has been successful because it has done a good job of putting public health initiatives into action. This includes its high institutional delivery rates as well as targeted plans, which quickly brought down the IMR and MMR from their previous high levels. People often say that Kerala does better because all of its women can read and write, which is something that came before and helped build its healthcare system. This socio-educational basis gives a small but statistically significant boost to health outcomes such as IMR and Life Expectancy. Tamil Nadu is a good example of how to make quick improvements and get things done, but Kerala is the best example of how to develop people in India, mostly because of its long-term investments in social programs

1.8 Conclusion

In India, Tamil Nadu as well as Kerala are known as "Health Outliers" because they have lowered the rates of maternal and infant death and reached fertility levels that are similar to those in affluent countries. Both states do very well, but Kerala has a steady, important edge in key mortality measures like the Infant Mortality Rate (IMR), the under-fives Mortality Rate (U5MR), the Maternal Death Rate (MMR), as well as Life Expectancy. Tamil Nadu has been successful because it has been able to carry out public health initiatives well and have a lot of institutional deliveries. This helped the state quickly lower its high death rates. A big reason why Kerala does better in the long run is that it has a high level of female literacy, which is a social and educational advantage that strengthens its healthcare system and gives it a statistically important edge in as a whole human development metrics. So, Tamil Nadu is a good example of how to make quick progress, and Kerala is the best place in India for human development since it keeps investing in social programs.

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