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BALANCING GROWTH AND SUSTAINABILITY: AN EMPIRICAL STUDY OF INDUSTRIALIZATION IN TELANGANA

Dr. Chilukuri Venkat Reddy

Assistant Professor of Economics

Government Degree College Badangpet, Rangareddy District
 Osmania University, Telangana State, India

Abstract

Since its formation in 2014, Telangana has rapidly transitioned from an agrarian economy to a prominent industrial hub in India. This study presents an empirical evaluation of the state's industrial development, focusing on policy frameworks, sectoral performance, socio-economic outcomes, and environmental sustainability. Utilizing a mixed-methods approach based on secondary data from government publications, academic literature, and economic surveys, the paper analyzes key initiatives such as TS-iPASS and the Telangana Industrial Policy. Findings highlight substantial investment inflows, job creation, and infrastructural expansion, especially in high-growth sectors like IT, pharmaceuticals, and precision manufacturing. However, challenges remain, including regional disparities, environmental externalities, and workforce skill mismatches. The study concludes with strategic recommendations to foster inclusive and sustainable industrialization, reinforcing Telangana's position as a model for policy-driven development in emerging economies.

Keywords: Telangana industrial policy, TS-iPASS, Sustainable development, Sectoral growth, Regional disparities, Socio-economic impact

1. INTRODUCTION

Industrial development is a pivotal driver of economic growth, employment generation, and poverty reduction, particularly in developing economies. For a newly formed state like Telangana, carved out of Andhra Pradesh in 2014, the imperative to establish a robust industrial base was paramount. Historically, the region now constituting Telangana was predominantly agrarian, with industrial activity largely concentrated around the capital city of Hyderabad. Post-bifurcation, the Telangana government embarked on an ambitious journey to transform its economic landscape, shifting focus towards industrialization as a primary engine for prosperity (FTCCI, 2017).

Telangana's strategic location, existing infrastructure, and a proactive government have positioned it as an attractive destination for investors. The state's policy framework, characterized by ease of doing business and sector-specific incentives, aimed to de-bottleneck bureaucratic hurdles and foster a conducive investment climate. This rapid industrialization, while promising economic dividends, also raises critical questions about its sustainability, inclusivity, and broader societal impacts. This study seeks to comprehensively evaluate Telangana's industrial development journey, shedding light on its successes, challenges, and future trajectory.

2. NEED FOR STUDY

Telangana's rapid industrial growth, as a newly formed state, presents a unique opportunity for academic analysis. Key initiatives like TS-iPASS require critical evaluation beyond investment data. Understanding which sectors are driving growth and the socio-economic impacts—such as employment trends, regional imbalances, and infrastructure—remains essential. Additionally, with expanding industries, especially in chemicals and pharmaceuticals, assessing environmental sustainability and regulatory compliance is crucial. This study aims to address these gaps through an in-depth, evidence-based analysis of Telangana's industrial development.



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3. OBJECTIVES

The primary objectives of this research article are as follows:

- 1) To analyze the evolution of industrial development in Telangana, identifying key policies and initiatives implemented since 2014.
- 2) To evaluate the performance of Telangana's industrial sector based on key economic indicators, including GSDP contribution, investment inflows, and employment generation.
- 3) To assess the socio-economic impacts of industrialization, focusing on job creation, infrastructure development, and regional equity.
- 4) To examine the environmental implications of industrial growth and the state's efforts towards sustainable industrial practices.
- 5) To identify the major challenges hindering industrial development and explore future opportunities for sustainable and inclusive growth in Telangana.

4. METHODOLOGY

This study adopts a descriptive and analytical research design, primarily relying on secondary data analysis. The methodology encompasses the following:

4.1 Data Collection:

- **Government Publications:** Economic Surveys of Telangana, Annual Reports of the Industries & Commerce Department, Telangana State Industrial Infrastructure Corporation (TSIIC), and TS-iPASS.
- **National Level Reports:** Publications from NITI Aayog, Reserve Bank of India (RBI), and Invest India that provide data and insights on state-level economic performance.
- **Academic Literature:** Peer-reviewed journal articles, research papers, and dissertations focusing on industrial development in Telangana or comparable Indian states.
- **News Articles and Policy Briefs:** Reputable media outlets and policy analysis organizations for contemporary updates and qualitative insights into policy implementation and public perception.

4.2 Data Analysis:

- **Quantitative Analysis:** Trend analysis of Gross State Domestic Product (GSDP) contribution by the industrial sector, year-on-year growth rates, investment figures (in Lakh Crores INR), and employment statistics. Comparative analysis with national averages or other leading industrial states, where appropriate, to contextualize Telangana's performance.
- **Qualitative Analysis:** Policy document analysis to understand the objectives, mechanisms, and intended outcomes of industrial policies. Evaluation of socio-economic and environmental impacts through thematic analysis of available reports and studies.
- **Sectoral Disaggregation:** Analysis of growth and investment patterns across key industrial sectors (e.g., IT, Pharmaceuticals, Manufacturing, Aerospace) to identify thrust areas and their contributions.

Limitations: The study is primarily based on secondary data, which may have limitations in terms of granularity and real-time validation. Direct stakeholder interviews or primary surveys were beyond the scope of this particular research, which could offer deeper qualitative insights.



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5. DATA ANALYSIS AND FINDINGS

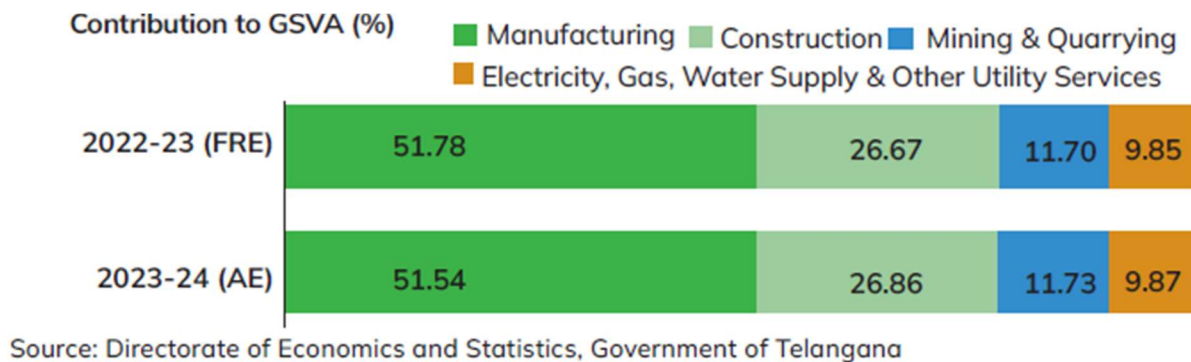
5.1. Policy Framework and Ease of Doing Business

Telangana's industrial ascent is largely attributed to its progressive policy framework, notably the Telangana State Industrial Policy Framework 2014 and the TS-iPASS Act, 2014. The Industrial Policy operates on the mantra "Innovate, Incubate, Incorporate" and prioritizes a "minimum inspection, maximum facilitation" approach (IndiaFilings, 2020; Telangana PCS Exam Notes, n.d.). It identifies 14 thrust areas, including Life Sciences, IT Hardware, Precision Engineering (Aviation, Aerospace, Defence), Food Processing, Automobiles, Textiles, and Renewable Energy (TSPSC Services, 2015).

The cornerstone of this framework is TS-iPASS (Telangana State Industrial Project Approval and Self-Certification System), a single-window clearance system that provides time-bound approvals for industrial projects, with a "deemed approval" clause for delayed responses and penalties for defaulting officers (The New Indian Express, 2022). This legislative backing for ease of doing business has significantly reduced red tape and attracted substantial investments. As of August 2022, TS-iPASS had attracted 19,454 industries, with 15,660 having commenced operations, bringing in investments of ₹2.32 lakh crores and creating potential employment for 16.48 lakh people cumulatively (The New Indian Express, 2022).

5.2. Economic Performance and Sectoral Growth

Telangana has demonstrated robust economic growth since its formation. The Gross State Domestic Product (GSDP) (at current prices) for 2024-25 is estimated at ₹16.5 lakh crore, with an increase of about 12.5% over the previous fiscal year. In 2023-24, Telangana's GSDP (at constant prices) grew at 7.4% (PRS Legislative Research, 2024).



- **Sectoral Contribution:** While the services sector remains the largest contributor to Telangana's economy, the industrial sector plays a crucial role. In 2023-24, the manufacturing sector contributed an estimated 16.4% to the GSVA (at current prices) and grew by 10.1% (PRS Legislative Research, 2024). Overall, the industrial sector employs approximately 22.5% of the state's workforce (Deccan Chronicle, 2024).
- **Investment Trends:** The period from 2014 to 2023 saw Telangana attract industrial investments totaling ₹2.60 trillion (US\$31.23 billion), largely facilitated by TS-iPASS (India Briefing, 2024). This consistent inflow of capital underscores investor confidence in the state's industrial climate.
- **Key Growth Sectors:**
 - **Information Technology (IT) and ITeS:** Hyderabad continues to be a global IT hub. IT and ITeS exports from Telangana reached ₹2.41 lakh crore in 2022-23, showcasing sustained growth and employment generation in this high-value sector (Invest India, n.d.).



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- **Pharmaceuticals & Life Sciences:** Telangana, particularly Hyderabad, is recognized as a global pharmaceutical hub. The upcoming Hyderabad Pharma City, once fully operational, is poised to significantly enhance the state's contribution to the global pharmaceutical industry. The Medical Devices Park also signals diversification within this sector.
- **Manufacturing & Precision Engineering:** The state has made inroads into manufacturing, including aerospace and defense. Industrial parks dedicated to these sectors, such as the Aerospace Park, demonstrate targeted development.
- **Food Processing:** The Telangana Food Processing Policy 2017 aims to leverage the state's agricultural strengths, promoting value addition and creating opportunities in this sector (Telangana Industries Department, n.d.).
- **Electric Vehicles (EVs) & Renewable Energy:** Telangana has actively pursued policies to attract investments in emerging sectors, designating areas like Divitipally and Chandanavelly for EV and New Energy Parks, respectively (Embassy of India, Bern, n.d.).

6. RESULT ANALYSIS

6.1. Socio-Economic Impact

The rapid industrial development in Telangana has had multifaceted socio-economic impacts:

- **Employment Generation:** The cumulative potential of 16.48 lakh jobs from TS-iPASS approvals (The New Indian Express, 2022) highlights the significant direct employment opportunities created. Beyond direct employment, the growth of industries fuels auxiliary services, logistics, and supply chains, leading to indirect job creation.
- **Infrastructure Development:** Industrialization has spurred massive infrastructure development. TSIIIC manages 156 industrial parks, facilitating organized industrial growth (Propnewstime, 2021). Key projects like the Outer Ring Road (ORR) and the proposed Regional Ring Road (RRR) enhance connectivity to industrial zones. Specialized infrastructure, such as the Hyderabad Pharma City and Medical Devices Park, provides dedicated ecosystems for specific industries. The T-Fiber project aims to provide high-speed internet connectivity, crucial for the IT and digital industries.
- **Skill Development:** Recognizing the need for a skilled workforce, the government has launched initiatives like Industrial Roundtables to align curricula with industry needs, modernized ITIs, and established Advanced Technology Centers (ATCs) and Centre of Excellence (COE) with industry collaboration (Invest India, 2023). Apprenticeship programs are also being promoted to enhance practical skills.
- **Regional Disparities:** While industrial growth is impressive, it remains heavily concentrated around the Hyderabad Urban Agglomeration and surrounding districts like Ranga Reddy and Medak. Studies indicate that while TS-iPASS has seen some dispersal of industries, districts like Nizamabad, Khammam, and Nalgonda witnessed a reduction in investment share in earlier periods post-bifurcation, signaling continued regional imbalances (IOSR Journal, n.d.). This asymmetrical growth can lead to disparities in income, employment, and access to services across the state.

6.2. Environmental Impact and Sustainability Efforts

Industrialization inevitably brings environmental challenges, particularly from pollution-intensive sectors like pharmaceuticals and chemicals. Telangana faces issues related to air and water pollution, groundwater depletion, and waste management (GIZ, 2020).

However, the state government has demonstrated a commitment to addressing these concerns:

- **Pollution Control:** Efforts include the proposed relocation of highly polluting industries from the Hyderabad urban area to designated zones like Hyderabad Pharma City, which is planned with common effluent treatment plants (CETPs) and adherence to environmental standards (Telangana Today, 2021).



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- **Green Industrial Zones:** The concept of "Eco-Towns," modeled on sustainable industrial development principles (e.g., Kitakyushu, Japan), is being explored to promote green industrial zones with integrated waste management and resource efficiency (GIZ, 2020).
- **Renewable Energy Promotion:** The Clean and Green Energy Policy 2025 and focus on solar parks and EV infrastructure aim to promote cleaner energy sources and reduce the carbon footprint of industrial activities (Invest India, n.d.).

7. CHALLENGES AND OPPORTUNITIES

7.1. Challenges

Despite robust growth, Telangana's industrial sector faces several challenges:

- **Land Acquisition:** Acquiring large parcels of land for industrial parks and mega-projects remains a significant hurdle, often leading to delays and increased costs (News reports on Pharma City land acquisition). The "rural industrial parks" initiative aims to address this by identifying suitable government lands (The Hindu 2022).
- **Infrastructure Gaps:** While urban infrastructure is strong, last-mile connectivity, reliable power, and water supply to emerging industrial clusters in interior districts can still be improved.
- **Skill Mismatch:** Despite skill development initiatives, a persistent gap exists between the skills demanded by modern industries and those possessed by the available workforce, particularly for advanced manufacturing and technology-driven roles.
- **Environmental Compliance:** Ensuring strict adherence to environmental norms by all industries, especially MSMEs, remains a continuous challenge, requiring robust monitoring and enforcement mechanisms.
- **Debt Burden:** The state's financial health, including its debt burden, could impact its capacity for future large-scale industrial infrastructure investments (PRS Legislative Research, 2024).

7.2. Opportunities

Telangana is uniquely positioned to capitalize on several emerging opportunities:

- **"China+1" Strategy:** Global geopolitical shifts and the diversification of supply chains present a significant opportunity for Telangana to attract manufacturing and R&D investments from companies seeking alternatives to China.
- **Emerging Technologies:** Strong focus on Artificial Intelligence (AI), Machine Learning (ML), Data Centers, SpaceTech, and advanced manufacturing can position Telangana as a leader in these sunrise sectors (Invest India, n.d.).
- **Global Capability Centers (GCCs):** Hyderabad's established IT ecosystem and talent pool make it an attractive location for GCCs of multinational corporations, driving high-value services growth.
- **Industrial Corridors:** Development of new industrial corridors (e.g., Hyderabad-Nagpur, Hyderabad-Warangal) and the Outer Ring Road/Regional Ring Road economic zones will open up new areas for industrial growth and potentially reduce Hyderabad's concentration.
- **Targeted Incentives:** Further fine-tuning sector-specific incentives and designing tailor-made packages for mega-projects can enhance competitiveness.



8. CONCLUSION

Telangana's industrial development journey since 2014 exemplifies a proactive and policy-driven approach to economic transformation. The state has successfully leveraged its strategic advantages, particularly through the implementation of TS-iPASS and a focus on key growth sectors like IT, Pharmaceuticals, and advanced manufacturing. This has led to substantial investment inflows and significant job creation, contributing positively to the state's GSDP and overall economic prosperity.

However, the path to sustained and inclusive industrialization is not without hurdles. Addressing regional disparities, ensuring stringent environmental compliance, and continuously upgrading the workforce's skills are critical for long-term success. The state has demonstrated an understanding of these challenges and initiated programs for skill development and sustainable industrial zones.

Looking ahead, Telangana has immense potential to solidify its position as a leading industrial hub in India. By strategically investing in future-ready infrastructure, fostering innovation in emerging technologies, promoting green industrial practices, and ensuring equitable distribution of industrial benefits across all districts, Telangana can realize its vision of a "Golden Telangana" – a state synonymous with inclusive growth, prosperity, and environmental stewardship.

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