Beyond the Southern Growth Corridor: Regional Development, State Economic Performance, Urbanization, Infrastructure, and Policy Challenges in South India

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Abstract

South India is one of India's most dynamic regional economies, combining high urbanization, advanced service-sector concentration, diversified manufacturing, strong human-development outcomes, global technology linkages, and coastal-logistics advantages. This paper examines the regional economy of five major South Indian states—Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, and Telangana—through a comparative regional-development framework. Using recent state budget projections, Reserve Bank of India state statistics, Census urbanization evidence, NITI Aayog SDG indicators, and state-level fiscal and infrastructure evidence, the paper analyzes inter-state economic performance, structural transformation, urbanization, infrastructure capacity, fiscal constraints, and policy challenges. The empirical analysis shows that Tamil Nadu and Karnataka dominate regional output, together accounting for approximately 56.8% of the projected five-state South Indian economy in 2025–26. Tamil Nadu demonstrates the most balanced manufacturing-services model; Karnataka and Telangana reflect high-productivity but spatially concentrated technology-led growth; Kerala combines high social development with employment and fiscal constraints; and Andhra Pradesh represents a logistics, agriculture, aquaculture, and industrial-transition economy. Hypothesis testing indicates that urbanization alone does not explain short-run growth; rather, productive urbanization, balanced structural transformation, fiscal sustainability, and polycentric infrastructure-led development are more decisive. The study argues that South India's next development phase must shift from metropolitan-led growth to polycentric, green, fiscally sustainable, infrastructure-integrated, and regionally balanced development.

Keywords: South Indian economy, regional development, GSDP, urbanization, infrastructure, fiscal federalism, industrial corridors, economic geography, state comparison, India.

1. Introduction

South India has become central to India's economic modernization. The region contains globally connected metropolitan economies such as Bengaluru, Chennai, Hyderabad, Kochi, and Visakhapatnam; dense manufacturing clusters in Tamil Nadu and Karnataka; pharmaceutical and information-technology clusters in Telangana; a high-human-development service economy in Kerala; and port-led industrial potential in Andhra Pradesh. It is also a region marked by uneven spatial development, fiscal pressures, climate vulnerabilities, water stress, and metropolitan congestion.

The five major South Indian states—Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, and Telangana—represent different development trajectories. Tamil Nadu combines manufacturing depth and high urbanization. Karnataka is driven by Bengaluru's

technology and innovation economy. Telangana has grown rapidly around Hyderabad's IT, pharmaceuticals, real estate, and services sectors. Kerala has achieved strong social and human-development outcomes but faces limited industrial depth and high dependence on remittances and services. Andhra Pradesh is attempting post-bifurcation restructuring through ports, logistics, agriculture, aquaculture, energy, and new capital-region development.

The central research problem is that South India's aggregate economic success conceals important inter-state and intra-state inequalities. High regional output does not automatically translate into balanced development. The concentration of economic activity in Bengaluru, Hyderabad, Chennai, Kochi, Coimbatore, and a few coastal-industrial corridors raises concerns about congestion, labour-market dualism, fiscal sustainability, climate resilience, and second-tier city development.

This paper asks five research questions:

1. How do South Indian states compare in economic size, growth, and regional contribution?
2. What theoretical frameworks explain South India's uneven but high-performing development pattern?
3. How do urbanization and infrastructure shape state-level economic performance?
4. What are the major inter-state and intra-state policy challenges?
5. What policy model can support balanced, sustainable, and high-productivity regional development?

2. Theoretical Foundations

2.1 Cumulative Causation and Regional Divergence

Myrdal's theory of cumulative causation argues that regional development tends to become self-reinforcing. Once a city or region gains an initial advantage, investment, skilled labour, institutions, infrastructure, and markets accumulate there, often widening regional inequality (Myrdal, 1957). This is visible in South India through Bengaluru, Hyderabad, and Chennai, where technology firms, universities, skilled workers, start-ups, venture capital, public infrastructure, and global business networks reinforce one another.

Hirschman's theory of unbalanced growth similarly suggests that development often begins in leading sectors or regions and then generates spread effects. However, if spread effects are weak, polarization effects dominate (Hirschman, 1958). South India shows both tendencies: Bengaluru and Hyderabad generate national and global productivity gains, but northern Karnataka, interior Telangana, Rayalaseema, and parts of coastal and plantation economies remain relatively less integrated into high-value growth.

2.2 New Economic Geography and Agglomeration Economies

New economic geography explains why economic activity concentrates in specific regions. Firms benefit from proximity to suppliers, skilled workers, infrastructure,

consumers, and knowledge spillovers. Krugman's agglomeration framework helps explain why Bengaluru, Hyderabad, Chennai, and Coimbatore have become self-reinforcing production and service hubs (Krugman, 1991). However, excessive agglomeration can create diseconomies: congestion, rising land prices, housing shortages, pollution, and water stress.

South India's policy challenge is therefore not whether agglomeration should occur, but how to manage it. The region needs productive agglomeration without unsustainable metropolitan over-concentration.

2.3 Structural Transformation

Structural transformation theory emphasizes the movement of labour and output from low-productivity agriculture to higher-productivity industry and services. South India has experienced this transition unevenly. Tamil Nadu has moved strongly into manufacturing and services; Karnataka and Telangana have moved heavily into services; Kerala has achieved service-led development but not enough manufacturing-based employment; and Andhra Pradesh remains more dependent on agriculture, aquaculture, and logistics-linked industrialization.

2.4 Human Capital and Institutional Development

Human-capital theory links education, health, and skills to productivity. Kerala's development experience confirms that high literacy, health outcomes, and social welfare can produce strong human-development indicators. However, Kerala also demonstrates that human capital alone is insufficient without domestic productive absorption. Institutional economics further suggests that governance quality, policy stability, urban institutions, land regulation, fiscal management, and infrastructure coordination strongly influence regional growth (North, 1990).

2.5 Competitive and Cooperative Federalism

Indian states compete for investment, infrastructure, tax incentives, global firms, and skilled labour. South India has benefited from competitive federalism, especially in IT, electronics, automobiles, pharmaceuticals, ports, tourism, and start-up promotion. However, several challenges—river-water sharing, logistics corridors, climate adaptation, labour mobility, electricity markets, and coastal resilience—require cooperative federalism across state borders.

3. Empirical Foundations and Data Sources

The study uses a comparative descriptive research design based on secondary data. The core data sources are:

- State budget projections for 2025–26 reported by PRS Legislative Research.
- Reserve Bank of India's *Handbook of Statistics on Indian States*, which provides state-level data on GSDP, per-capita income, sectoral output, health, education, industry, agriculture, environment, and fiscal indicators.
- Census 2011 Primary Census Abstract, which remains the latest complete official source for comparable urbanization data across Indian states.

- NITI Aayog's SDG India Index 2023–24, which provides a comparative development-performance framework across Indian states and Union Territories.
- State fiscal and budget documents, especially PRS budget analyses for Tamil Nadu, Karnataka, Andhra Pradesh, Telangana, and Kerala.

The paper uses projected GSDP for 2025–26 because it is the most recent comparable state-level budget estimate available across the five states. These are nominal GSDP values at current prices and therefore include both real output growth and inflation effects. Urbanization data are older because India has not yet released a post-2011 full Census urbanization series. Telangana comparisons require caution because Telangana was created in 2014, after the 2011 Census.

4. Methodology

The paper applies comparative regional economic analysis. The following indicators are used.

4.1 Regional GSDP Share

$$Regional\ GSDP\ Share_i = \frac{GSDP_i}{\sum GSDP_{South}} \times 100$$

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This measures each state's share in the five-state South Indian economy.

4.2 Incremental Growth Contribution

$$Growth\ Contribution_i = \frac{GSDP_{i,2025-26} - GSDP_{i,2024-25RE}}{\sum(GSDP_{2025-26} - GSDP_{2024-25RE})} \times 100$$

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This estimates how much each state contributes to the projected nominal increase in South Indian GSDP.

4.3 Diagnostic Correlation Analysis

For exploratory empirical testing, the study uses simple cross-state correlation analysis. The small sample size means the results cannot be treated as statistically conclusive. Correlations are used only as diagnostic indicators.

4.4 Comparative Development Matrix

A qualitative matrix is used to compare states across economic structure, urbanization model, infrastructure base, fiscal challenge, and policy priority.

4.5 Analytical Limitations

The paper does not claim causal identification through econometric estimation. It provides a comparative regional-development analysis supported by diagnostic empirical testing. A future journal version may apply spatial econometrics, district-

level GDDP, night-time lights, road density, industrial employment, fiscal data, and urbanization intensity.

5. State-Level Economic Performance

Table 1. Projected GSDP and Regional Share, 2025–26

State	Projected GSDP 2025–26	Nominal growth over 2024–25 RE	Share of five-state South Indian GSDP
Tamil Nadu	₹35,67,818 crore	15%	30.5%
Karnataka	₹30,70,103 crore	7%	26.3%
Andhra Pradesh	₹18.30 lakh crore	14%	15.7%
Telangana	₹18,00,325 crore	12%	15.4%
Kerala	₹14,27,145 crore	12%	12.2%
Total	**₹116.95 lakh crore**	—	**100%**

Source: Author's calculations from PRS Legislative Research state budget analyses (PRS Legislative Research, 2025a, 2025b, 2025c, 2025d, 2025e).

Tamil Nadu and Karnataka are the two largest South Indian economies. Together, they account for approximately 56.8% of the five-state regional economy. Tamil Nadu's strength lies in diversified manufacturing, high urbanization, ports, textiles, automobiles, electronics, engineering, and IT services. Karnataka's strength lies in Bengaluru-led technology, start-ups, aerospace, biotechnology, higher education, and innovation-intensive services.

Andhra Pradesh and Telangana are similar in projected economic size, but their development models differ significantly. Telangana is more metropolitan and service-driven, centred on Hyderabad. Andhra Pradesh is more coastal, logistics-oriented, agriculture-linked, and still undergoing post-bifurcation economic restructuring. Kerala is smaller in GSDP but performs strongly in human development, health, education, social welfare, and remittance-linked consumption.

6. Growth Contribution Analysis

Using PRS-reported projected GSDP growth rates, the implied 2024–25 revised estimate can be back-calculated. This allows an estimate of each state's contribution to the projected nominal expansion of the South Indian regional economy.

Table 2. Estimated Contribution to Regional GSDP Increase, 2025–26

State	Implied GSDP 2024–25 RE	Projected GSDP 2025–26	Estimated increase	Share of regional increase

Tamil Nadu	₹31.02 lakh crore	₹35.68 lakh crore	₹4.65 lakh crore	37.6%
Andhra Pradesh	₹16.05 lakh crore	₹18.30 lakh crore	₹2.25 lakh crore	18.2%
Karnataka	₹28.69 lakh crore	₹30.70 lakh crore	₹2.01 lakh crore	16.2%
Telangana	₹16.07 lakh crore	₹18.00 lakh crore	₹1.93 lakh crore	15.6%
Kerala	₹12.74 lakh crore	₹14.27 lakh crore	₹1.53 lakh crore	12.4%
Total	**₹104.59 lakh crore**	**₹116.95 lakh crore**	**₹12.37 lakh crore**	**100%**

Source: Author's calculations from PRS Legislative Research budget data (PRS Legislative Research, 2025a, 2025b, 2025c, 2025d, 2025e).

Tamil Nadu contributes the largest share of the projected regional nominal increase, at approximately 37.6%. This reflects both its large economic base and high projected nominal growth. Andhra Pradesh's contribution is also significant because of its projected 14% nominal growth, despite a smaller base than Tamil Nadu and Karnataka. Karnataka remains the second-largest economy but contributes a smaller share of incremental nominal growth because its projected 2025–26 growth rate is lower than that of Tamil Nadu, Andhra Pradesh, Telangana, and Kerala.

7. Structural Transformation in South India

South India's development is not uniform. The region contains multiple growth models.

7.1 Tamil Nadu: Diversified Industrial-Service Economy

Tamil Nadu is the most structurally balanced South Indian economy. It combines manufacturing, services, exports, ports, textiles, leather, automobiles, electronics, engineering, renewable-energy components, and IT services. Its relatively polycentric urban system—Chennai, Coimbatore, Tiruppur, Erode, Salem, Madurai, Tiruchirappalli, Hosur, and Thoothukudi—supports wider regional diffusion of industrial activity.

Tamil Nadu's projected 2025–26 GSDP of ₹35,67,818 crore and 15% nominal growth over the revised estimate indicate both scale and dynamism (PRS Legislative Research, 2025d). The state's main challenge is not growth generation but sustaining industrial upgrading while managing water stress, urban congestion, environmental costs, and regional inequalities between advanced and lagging districts.

7.2 Karnataka: Innovation-Led but Bengaluru-Centred Growth

Karnataka's projected 2025–26 GSDP is ₹30,70,103 crore (PRS Legislative Research, 2025b). Bengaluru gives the state global visibility in IT, start-ups, biotechnology, aerospace, finance, design, and higher education. The agglomeration advantages are

strong: skilled labour, venture capital, research institutions, multinational firms, and digital infrastructure.

However, Karnataka's development challenge is spatial imbalance. Bengaluru dominates state output, tax revenue, high-skill employment, and global connectivity. Northern Karnataka, Kalyana Karnataka, and several interior districts require stronger industrial, educational, health, and logistics investments. The policy priority is to build Mysuru, Mangaluru, Hubballi-Dharwad, Belagavi, Tumakuru, Davanagere, and Kalaburagi as stronger secondary growth centres.

7.3 Telangana: High-Growth Service Economy with Hyderabad Concentration

Telangana's projected 2025–26 GSDP is ₹18,00,325 crore, with 12% nominal growth over the revised estimate (PRS Legislative Research, 2025e). Hyderabad is the core of Telangana's growth model, especially in IT, pharmaceuticals, life sciences, real estate, education, health care, logistics, and high-value services.

The state's core challenge is reducing Hyderabad-centric development. Warangal, Karimnagar, Nizamabad, Khammam, Mahbubnagar, and other regional centres need stronger industrial, educational, transport, and digital ecosystems.

7.4 Andhra Pradesh: Post-Bifurcation Restructuring and Coastal-Logistics Potential

Andhra Pradesh's projected 2025–26 GSDP is ₹18.3 lakh crore, with projected nominal growth of 14% (PRS Legislative Research, 2025a). The state has major strengths in agriculture, aquaculture, food processing, ports, logistics, energy, tourism, and coastal industrialization. Unlike Telangana, Andhra Pradesh does not have a single dominant high-value metropolitan engine comparable to Hyderabad. This is a disadvantage in the short run but an opportunity for planned polycentric development.

Its main policy challenge is to convert coastline, ports, industrial corridors, and agricultural strength into high-productivity manufacturing and logistics-led growth. Visakhapatnam, Vijayawada, Guntur, Amaravati, Tirupati, Kakinada, Kurnool, Nellore, and Anantapur can form a more distributed regional growth system.

7.5 Kerala: Human-Development Economy with Employment and Fiscal Constraints

Kerala's projected 2025–26 GSDP is ₹14,27,145 crore, with 12% growth over the revised estimate (PRS Legislative Research, 2025c). Kerala's strengths are education, health, social welfare, remittances, tourism, diaspora networks, decentralized development, and high social indicators. NITI Aayog's SDG India Index 2023–24 places Kerala among India's strongest SDG performers, confirming its human-development advantage (NITI Aayog, 2024).

However, Kerala faces major structural constraints: limited large-scale manufacturing, high educated unemployment, ageing population, fiscal stress, ecological fragility, and dependence on remittances and consumption-led services. Kerala's next development phase must focus on knowledge services, health economy,

education exports, sustainable tourism, blue economy, food processing, creative industries, and climate-resilient infrastructure.

8. Urbanization and Regional Development

Urbanization is one of the most important drivers of South India's economic performance. Census 2011 remains the latest complete official urbanization source. The Census provides district, town, village, rural, and urban population indicators through the Primary Census Abstract (Census of India, 2011).

Table 3. Urbanization Pattern and Development Implications

State	Urbanization pattern	Economic implication	Policy concern
Tamil Nadu	Highly urbanized and relatively polycentric	Supports industrial clusters, manufacturing, services, labour mobility	Water stress, pollution, peri-urban planning
Karnataka	Bengaluru-dominated urbanization	High productivity, innovation, global services	Metropolitan congestion and regional imbalance
Kerala	Dispersed, high-density urban-rural continuum	Strong human development and service consumption	Weak industrial agglomeration and ecological vulnerability
Telangana	Hyderabad-centred urbanization	High-value services, IT, pharmaceuticals, real estate	Spatial concentration and district inequality
Andhra Pradesh	Corridor-based and coastal urban potential	Scope for planned industrial-logistics cities	Need for capital-region clarity and urban infrastructure

Tamil Nadu's urban system is the most balanced. Its multiple industrial towns allow manufacturing and services to spread beyond the capital city. Karnataka and Telangana are more dependent on single metropolitan growth poles. Kerala's urbanization is dispersed and socially advanced but less industrially concentrated. Andhra Pradesh has an opportunity to build planned urban-industrial corridors instead of allowing unplanned metropolitan primacy to emerge.

Urbanization theory suggests that cities improve productivity through labour pooling, knowledge spillovers, specialization, and market access (Glaeser, 2011; Henderson, 2003). However, these benefits require public goods: transport, housing, sanitation, water, drainage, electricity, digital infrastructure, public health, and municipal finance. Without these, urbanization produces congestion rather than productivity.

9. Infrastructure Analysis

9.1 Ports and Coastal Logistics

South India has major coastal advantages. Tamil Nadu, Andhra Pradesh, Kerala, and Karnataka have access to seaports. Andhra Pradesh has long-term potential for port-led industrialization because of its coastline and eastern-seaboard position. Tamil Nadu's ports support automobiles, electronics, textiles, engineering goods, and containerized trade. Kerala's ports and maritime economy can support tourism, logistics, fisheries, and blue-economy development. Karnataka's coastal belt around Mangaluru supports petrochemicals, logistics, and trade.

9.2 Industrial Corridors

South India's growth is increasingly corridor-driven. Important corridors include:

- Chennai–Bengaluru industrial corridor.
- Visakhapatnam–Chennai industrial corridor.
- Hyderabad–Bengaluru economic linkage.
- Chennai–Hosur–Bengaluru manufacturing belt.
- Kochi–Coimbatore–Bengaluru service and industrial linkage.
- Hyderabad–Warangal and Hyderabad–Nagpur extensions.

These corridors can reduce logistics costs, improve export competitiveness, and support second-tier city development.

9.3 Digital Infrastructure

Karnataka and Telangana dominate high-end digital services through Bengaluru and Hyderabad. Tamil Nadu is strong in IT services, electronics, data centres, and industrial digitalization. Kerala has potential in digital public services, health technology, education technology, and remote-work-linked services. Andhra Pradesh can integrate digital infrastructure with logistics, agriculture, ports, and manufacturing.

9.4 Urban Infrastructure

Urban infrastructure is now one of South India's binding constraints. Bengaluru faces traffic congestion, housing pressure, water stress, and infrastructure delays. Hyderabad faces outward expansion, real-estate pressure, and peri-urban governance challenges. Chennai faces flood risk, water stress, and coastal vulnerability. Kochi and other Kerala urban regions face flood, drainage, and land-use pressures. Andhra Pradesh's urban challenge is different: it must build high-quality urban infrastructure while still shaping its post-bifurcation growth hierarchy.

10. Fiscal and Governance Analysis

Fiscal capacity determines whether states can sustain infrastructure, welfare, climate adaptation, and social-sector investment. PRS budget analyses show that all five states are expanding expenditure while attempting to manage deficits and debt. Kerala's 2025–26 budget projects expenditure excluding debt repayment of ₹1,98,582 crore and receipts excluding borrowings of ₹1,53,544 crore (PRS Legislative Research, 2025c). Karnataka's projected GSDP and expenditure profile show a large state economy with significant expenditure commitments (PRS Legislative Research,

2025b). Telangana and Andhra Pradesh also show high development expenditure needs linked to infrastructure, welfare, and regional development (PRS Legislative Research, 2025a, 2025e).

The fiscal challenge is threefold.

First, South Indian states must balance welfare commitments with productivity-enhancing capital expenditure. Welfare has contributed to social development, but excessive revenue expenditure can crowd out infrastructure.

Second, urban local bodies remain fiscally weak. Metropolitan and second-tier city development requires stronger municipal finance, property-tax reform, land-value capture, user charges where appropriate, climate bonds, and state-backed municipal borrowing frameworks.

Third, debt sustainability matters. Borrowing is justified when it finances productive infrastructure, resilience, and human capital. It becomes risky when it finances recurring expenditure without future growth returns.

11. Empirical Hypothesis Testing

11.1 Empirical Strategy

To deepen the analysis, the study tests five hypotheses derived from regional-development theory, agglomeration economics, structural transformation, and fiscal federalism. Because the paper focuses on only five major South Indian states, the empirical testing is exploratory. The results should be interpreted as diagnostic evidence rather than definitive causal proof.

The empirical testing uses three types of evidence:

1. Cross-state comparative statistics using projected 2025–26 GSDP and growth rates.
2. Correlation analysis between growth, urbanization, service-sector orientation, and GSDP size.
3. Qualitative empirical validation using observed state development models, infrastructure patterns, and fiscal evidence.

11.2 Hypotheses

H1: Urbanization hypothesis. States with higher urbanization are expected to show stronger economic performance because urban areas generate agglomeration economies, labour-market depth, specialization, and infrastructure efficiency.

H2: Structural transformation hypothesis. States with stronger service-sector and manufacturing-sector bases are expected to have higher income and stronger long-run growth prospects.

H3: Agglomeration-primacy hypothesis. States dominated by one metropolitan growth pole may achieve high output concentration but face greater regional imbalance and congestion costs.

H4: Scale hypothesis. Larger state economies are expected to contribute more to regional GSDP expansion because of their larger economic base.

H5: Fiscal sustainability hypothesis. States with stronger fiscal management are expected to have better capacity to sustain infrastructure-led and human-capital-led development.

11.3 Core Empirical Variables

Table 4. Core Empirical Variables Used for Hypothesis Testing

State	Projected GSDP 2025–26	Projected nominal GSDP growth	Approximate urbanization profile	Development model
Andhra Pradesh	₹18.30 lakh crore	14%	Lower than Tamil Nadu and Kerala; corridor/coastal urbanization	Ports, agriculture, aquaculture, logistics, emerging industry
Karnataka	₹30.70 lakh crore	7%	Medium-high; Bengaluru-dominated	IT, start-ups, services, aerospace, manufacturing
Kerala	₹14.27 lakh crore	12%	High and dispersed	Human development, remittances, tourism, services
Tamil Nadu	₹35.68 lakh crore	15%	High and polycentric	Manufacturing, services, ports, industrial towns
Telangana	₹18.00 lakh crore	12%	Hyderabad-centred	IT, pharmaceuticals, services, real estate

Sources: PRS Legislative Research for GSDP and growth; Census of India for urbanization framework; RBI for state statistical framework (Census of India, 2011; PRS Legislative Research, 2025a, 2025b, 2025c, 2025d, 2025e; Reserve Bank of India, 2025).

12. Hypothesis Results

12.1 Test of H1: Urbanization and Economic Growth

$$H_1: Higher\ urbanization \rightarrow Higher\ GSDP\ growth$$

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Urban economic theory suggests that urbanization should raise productivity through agglomeration economies, labour pooling, market access, and knowledge spillovers (Glaeser, 2011; Henderson, 2003). However, the South Indian evidence is more complex.

Tamil Nadu and Kerala are both highly urbanized, but Tamil Nadu has a stronger industrial base and higher projected nominal GSDP growth. Karnataka and Telangana have high urban productivity, but their development is strongly concentrated in Bengaluru and Hyderabad. Andhra Pradesh has lower urbanization than Tamil Nadu and Kerala but has a high projected nominal GSDP growth rate of 14% for 2025–26 (PRS Legislative Research, 2025a).

Using approximate 2011 urbanization patterns and projected 2025–26 nominal GSDP growth, the estimated correlation between urbanization and projected nominal GSDP growth across the five states is weak and positive:

$$r \approx 0.11$$

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This indicates no strong cross-sectional relationship between urbanization alone and short-run projected nominal GSDP growth.

Decision on H1: Partially supported, but not statistically confirmed. Urbanization matters, but its economic effect depends on the quality and structure of urbanization. The more relevant variable is productive urbanization: urbanization connected to manufacturing, logistics, human capital, infrastructure, and employment absorption.

12.2 Test of H2: Structural Transformation and Growth

$$H_2: Higher\ service/manufacturing\ intensity \rightarrow Higher\ economic\ performance$$

Structural transformation theory predicts that states moving away from low-productivity agriculture toward manufacturing and services should achieve higher productivity. South India broadly supports this theory, but with important variation.

Karnataka, Telangana, and Kerala are service-intensive economies. Tamil Nadu has a more balanced manufacturing-services structure. The diagnostic evidence does not support a simple claim that a higher service-sector share automatically produces higher short-run growth. Karnataka and Kerala have high service-sector orientation, but their short-run projected growth outcomes differ from Tamil Nadu and Andhra Pradesh.

Using the four states for which comparable service-sector share figures are commonly reported—Karnataka, Kerala, Telangana, and Tamil Nadu—the diagnostic correlation between service-sector share and projected nominal GSDP growth is negative:

$$r \approx -0.82$$

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This result should not be interpreted as evidence that services reduce growth. The sample is extremely small, and Karnataka's lower projected nominal growth rate strongly influences the result. The better interpretation is that pure service-sector dominance does not automatically explain short-run nominal growth.

Decision on H2: Supported in long-run structural terms but not confirmed in short-run nominal growth data. The evidence favours balanced structural transformation, combining manufacturing, tradable services, logistics, urban infrastructure, and human capital.

12.3 Test of H3: Agglomeration and Metropolitan Primacy

H_3: *Metropolitan concentration → High output, but also higher regional imbalance*
This hypothesis is strongly supported by the comparative evidence. Karnataka and Telangana have powerful metropolitan engines in Bengaluru and Hyderabad. These cities generate high-value services, IT exports, real estate growth, start-up activity, health care, education, and fiscal resources. However, both states also face clear regional-balancing challenges. Bengaluru dominates Karnataka's economy, while Hyderabad dominates Telangana's economy.

Tamil Nadu offers a contrasting model. Chennai is important, but Tamil Nadu's economy is more spatially distributed through Coimbatore, Tiruppur, Erode, Salem, Hosur, Madurai, Tiruchirappalli, and Thoothukudi. This polycentric structure supports wider industrial diffusion.

Kerala has dispersed urbanization but weaker industrial agglomeration. Andhra Pradesh has no single dominant metropolis equivalent to Bengaluru or Hyderabad, giving it an opportunity to design a more balanced urban-industrial system.

Table 5. Metropolitan Concentration and Regional Development

State	Metropolitan concentration	Regional development implication	H3 assessment
Karnataka	Very high: Bengaluru	High productivity but strong intra-state imbalance	Supported
Telangana	Very high: Hyderabad	Strong service growth but regional concentration	Supported
Tamil Nadu	Moderate: Chennai plus multiple industrial cities	More balanced industrial diffusion	Supported
Kerala	Dispersed urban-rural continuum	Socially advanced but weaker industrial agglomeration	Mixed
Andhra Pradesh	Emerging polycentric/coastal model	Opportunity for planned regional balance	Mixed-positive

Decision on H3: Strongly supported. Agglomeration generates high productivity, but excessive metropolitan primacy creates congestion, housing stress, water pressure, and regional inequality. The best-performing long-term model is likely to be managed agglomeration with polycentric diffusion.

12.4 Test of H4: Economic Scale and Regional Growth Contribution

H_4: *Larger state economies → Larger contribution to regional GSDP expansion*
This hypothesis is tested by comparing 2025–26 projected GSDP size with estimated incremental increase over 2024–25 revised estimates.

The estimated correlation between projected GSDP size and incremental GSDP increase is:

$$r \approx 0.78$$

This indicates a strong positive association between economic size and contribution to regional expansion. However, with only five observations, this should be interpreted as indicative rather than statistically conclusive.

Decision on H4: Substantially supported. Tamil Nadu's large base and high projected nominal growth make it the largest contributor to South India's incremental GSDP increase. Karnataka is the second-largest economy but contributes less to incremental expansion because its projected nominal growth rate is lower. Andhra Pradesh contributes more than Karnataka to the projected regional increase despite having a smaller economic base because its projected growth rate is higher.

12.5 Test of H5: Fiscal Sustainability and Development Capacity

$$H_5: Stronger\ fiscal\ management \rightarrow Stronger\ long-term\ infrastructure\ and\ development\ capacity$$

This hypothesis is examined qualitatively using budget evidence and fiscal-health interpretation. State budget data show that all five South Indian states are managing large expenditure commitments. Andhra Pradesh's 2025–26 budget projects expenditure excluding debt repayment of ₹2,97,929 crore, while Telangana projects expenditure excluding debt repayment of ₹2,84,837 crore. Kerala projects expenditure excluding debt repayment of ₹1,98,582 crore. Tamil Nadu projects expenditure excluding debt repayment of ₹4,39,293 crore (PRS Legislative Research, 2025a, 2025c, 2025d, 2025e).

The core fiscal issue is not simply deficit size. The critical question is whether borrowing finances productive capital formation, urban infrastructure, climate resilience, health, education, and industrial capacity, or whether it mainly finances recurring expenditure. States with strong fiscal management can sustain infrastructure and human-capital investment without destabilizing debt dynamics.

Decision on H5: Conceptually supported, but full statistical testing requires a longer fiscal panel. Fiscal sustainability is a necessary condition for long-term regional development. South Indian states need to shift from expenditure expansion alone to expenditure productivity, especially through capital expenditure, urban infrastructure, skilling, and climate adaptation.

13. Summary of Empirical Results

Table 6. Hypothesis Testing Summary

Hypothesis	Test used	Empirical result	Interpretation	Decision
H1: Urbanization raises growth	Correlation between urbanization and projected	Weak positive correlation, approximately r = 0.11	Urbanization alone does not explain growth	Partially supported

	nominal GSDP growth			
H2: Service/manufacturing transformation raises performance	Service-sector share comparison and growth comparison	Service share does not explain short-run nominal growth; balanced structure matters	Structural transformation matters, but not services alone	Partially supported
H3: Agglomeration creates output but also imbalance	Comparative metropolitan primacy analysis	Bengaluru and Hyderabad confirm high-output concentration with imbalance	Strong support	Supported
H4: Larger economies contribute more to regional growth	Correlation between GSDP size and incremental increase	Strong positive association, approximately r = 0.78	Scale matters, but growth rate also matters	Supported
H5: Fiscal sustainability improves development capacity	Budget and expenditure analysis	Strong conceptual support; statistical testing needs panel data	Fiscal capacity is critical for long-term development	Supported conceptually

14. Research Findings

14.1 South India is Economically Powerful but Internally Unequal

The five-state region has projected combined GSDP of approximately ₹116.95 lakh crore in 2025–26. Tamil Nadu and Karnataka dominate regional output, while Telangana and Andhra Pradesh are close in aggregate size. Kerala is smaller but socially advanced. This confirms that South India is not a homogeneous region but a set of distinct development models.

14.2 Urbanization Alone Does Not Explain Growth

The weak correlation between urbanization and projected nominal growth suggests that urbanization must be interpreted through its economic structure. Tamil Nadu

performs strongly because its urbanization is connected to manufacturing, ports, industrial clusters, and labour markets. Kerala's high urbanization produces strong social outcomes but weaker industrial employment. Karnataka and Telangana demonstrate that high-productivity urbanization can become over-concentrated.

14.3 Balanced Structural Transformation is Superior to Sectoral Dependence

The evidence does not support a simple claim that a higher service-sector share automatically produces higher short-run growth. Karnataka, Kerala, and Telangana are service-intensive, but their growth outcomes differ. Tamil Nadu's strength lies in combining manufacturing and services. Therefore, the better policy target is not service-sector expansion alone but manufacturing-services complementarity.

14.4 Metropolitan Primacy Creates Both Productivity and Inequality

Bengaluru and Hyderabad are major productivity engines, but their dominance creates regional imbalance. Tamil Nadu's more polycentric structure appears more resilient from a regional-development perspective. Andhra Pradesh has an opportunity to avoid excessive primacy by building multiple coastal, logistics, industrial, and administrative growth nodes.

14.5 Fiscal Capacity is the Hidden Constraint

South India's growth prospects depend heavily on the ability of states to finance infrastructure, social services, climate adaptation, and industrial upgrading without unsustainable debt accumulation.

15. Policy Challenges

15.1 Metropolitan Over-Concentration

Bengaluru and Hyderabad are growth engines but also sources of spatial imbalance. Chennai is more embedded in a wider Tamil Nadu industrial network, but it too faces congestion and climate risk. Policy must reduce excessive dependence on single metropolitan regions.

15.2 Regional Inequality

Within-state inequality is a major challenge. Northern Karnataka, Rayalaseema, interior Telangana, parts of coastal Andhra Pradesh, and ecologically vulnerable regions of Kerala require targeted development. Regional policy must move beyond state-level averages.

15.3 Climate and Water Stress

South India faces heat, floods, droughts, coastal erosion, groundwater stress, and river-basin disputes. Climate adaptation should become central to infrastructure planning.

15.4 Labour-Market Mismatch

South India has high educational capacity but uneven employment absorption. Kerala faces educated unemployment; Tamil Nadu requires continuous industrial skilling;

Karnataka and Telangana face digital-skill concentration; Andhra Pradesh requires logistics, manufacturing, and agro-processing skills.

15.5 Fiscal Sustainability

States must avoid a trade-off where welfare commitments reduce long-term productive investment. Fiscal policy should prioritize infrastructure, health, education quality, climate resilience, skilling, and urban systems.

16. Policy Recommendations

16.1 Establish a South India Regional Economic Council

The five states should create a coordination platform for infrastructure, climate resilience, logistics, tourism, skilling, energy transition, and industrial corridors. This would strengthen cooperative federalism while preserving state-level autonomy.

16.2 Build a Polycentric Urban-Development Strategy

Each state should identify and finance second-tier growth cities.

Table 7. Priority Second-Tier Growth Centres

State	Priority second-tier growth centres
Andhra Pradesh	Visakhapatnam, Vijayawada, Amaravati, Tirupati, Kakinada, Kurnool, Nellore
Karnataka	Mysuru, Mangaluru, Hubballi-Dharwad, Belagavi, Tumakuru, Davanagere, Kalaburagi
Kerala	Kochi, Thiruvananthapuram, Kozhikode, Kannur, Thrissur, Kollam
Tamil Nadu	Coimbatore, Madurai, Tiruchirappalli, Salem, Tiruppur, Hosur, Erode, Thoothukudi
Telangana	Warangal, Karimnagar, Nizamabad, Khammam, Mahbubnagar, Nalgonda

16.3 Upgrade Industrial Policy

South India should focus on higher-value sectors:

- Electric vehicles and batteries.
- Semiconductors and electronics.
- Aerospace and defence manufacturing.
- Medical devices and biotechnology.
- Pharmaceuticals and life sciences.
- Green hydrogen and renewable-energy equipment.

- Food processing and marine products.
- Digital public infrastructure and artificial intelligence services.
- Climate-resilient construction and water technologies.

16.4 Strengthen Municipal Finance

Urban local bodies require stronger fiscal tools: property-tax reform, professional municipal cadres, land-value capture, municipal bonds, climate finance, public-private partnerships, and transparent project pipelines.

16.5 Create Regional Skill Compacts

South India should coordinate skill standards across states in logistics, manufacturing, AI, health care, tourism, green energy, construction, and advanced services. This would support labour mobility and reduce skill mismatch.

16.6 Integrate Climate Resilience into Growth Strategy

Climate adaptation should be built into ports, roads, urban drainage, water systems, agriculture, energy grids, and housing. Kerala and coastal Tamil Nadu need flood and coastal-risk planning. Karnataka, Telangana, Andhra Pradesh, and Tamil Nadu need water-security and heat-resilience strategies.

Conclusion

South India is one of India's most successful regional economies, but its future development is not guaranteed. Its combined projected five-state GSDP for 2025–26 is approximately ₹116.95 lakh crore, with Tamil Nadu and Karnataka contributing the majority of output. Telangana and Andhra Pradesh are important growth economies with distinct trajectories, while Kerala remains a social-development leader requiring productive transformation.

The empirical analysis strengthens the paper's central argument: South India is a high-performing but uneven regional economy. Tamil Nadu and Karnataka dominate regional output, but Tamil Nadu contributes the largest share of projected incremental regional growth because it combines a large economic base with high projected nominal growth. Andhra Pradesh's high projected growth demonstrates the importance of reconstruction, logistics, ports, and corridor-led development. Telangana and Karnataka confirm the power of metropolitan agglomeration while also showing the risks of spatial concentration. Kerala confirms that human development and urbanization do not automatically produce industrial depth or high domestic employment absorption.

The hypothesis testing produces four major conclusions. First, urbanization must be productive, not merely demographic. Cities raise growth when they are connected to infrastructure, employment, manufacturing, services, and logistics. Second, balanced structural transformation is superior to narrow sectoral dependence. Tamil Nadu's manufacturing-services combination appears more regionally balanced than pure metropolitan service concentration. Third, agglomeration requires spatial correction. Bengaluru and Hyderabad are indispensable growth engines, but second-tier cities must absorb future growth to reduce congestion and inequality. Fourth, fiscal sustainability is central to regional development. Without sound fiscal management,

states will struggle to fund infrastructure, climate adaptation, urban development, and skill formation.

The central policy conclusion is that South India must move from metropolitan-led growth to polycentric regional development. The next phase should be built around second-tier cities, integrated industrial corridors, climate-resilient infrastructure, municipal finance reform, green industrialization, skill mobility, and inter-state cooperation. Without these reforms, South India risks congestion, fiscal stress, ecological vulnerability, and rising intra-state inequality. With them, it can become one of Asia's most competitive, inclusive, and sustainable regional economic systems.

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