



## SPATIAL AND TEMPORAL PATTERNS OF LITERACY AMONG SCHEDULED CASTES AND SCHEDULED TRIBES IN TAMIL NADU: INSIGHTS FROM THE 2001 AND 2011 CENSUS

### Geography

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### ABSTRACT

This study assesses the literacy trends of Schedule Caste (SC) and Schedule tribes (ST) in Tamilnadu between 2001 and 2011 census using a spatio-temporal approach. The research depends on secondary data obtained from the census of India reports for both years. A key objective to analyze literacy disparity between Urban and Rural population as well as the gap between SC and ST community and the general population. Findings indicate a notable rise in literacy rates across the state over the decade. However, significant disparities persist particularly in rural areas where SC and ST communities continue to face educational attainment. The study highlights the role of socio-economic factors, infrastructure challenges and policy implementation in shaping literacy outcomes. The SC and ST communities of rural areas are still continue to face educational attainment and also study highlights the role of socio-economic factors, infrastructure challenges and policy implementation in shaping literacy outcomes. Not only improvements, the gap between marginalized groups and border population remains a concern necessitating targeted educational reforms. This research suggests the policy interventions are strengthening rural education, infrastructure, implementing inclusive learning programs and enhancing welfare measures for disadvantaged groups. It is important to overcome these challenges to ensure literacy growth for everyone in society.

### KEYWORDS

Literacy rates, Scheduled Castes and Scheduled Tribes, educational disparities, Tamil Nadu

### INTRODUCTION

Tamil Nadu, a southern Indian state, has made steady improvements in education over the past decades. The Scheduled Castes (SCs) and Scheduled Tribes (STs) communities often continues to face challenges. Literacy is a critical determinant of socio-economic development, acting as a catalyst for empowerment, poverty alleviation, and social mobility. Literacy is about getting access to better jobs and a better life. Even with all the government schemes meant to support these communities, the literacy gap hasn't gone away. The divide is clear between urban and rural areas, and also between male and female. This study explains how literacy of Scheduled castes and Scheduled Tribes have changed over time. This study seeks to explore the spatial and temporal patterns of literacy among Scheduled Castes (SCs) and Scheduled Tribes (STs) in Tamil Nadu using data from the 2001 and 2011 Census. The goal is to find out where the biggest gaps are and why they are still there.

In Tamilnadu we need to understand these differences If we really want to make education fair for everyone. Understanding these patterns is crucial to achieving equitable educational outcomes and fostering inclusive growth in Tamil Nadu's diverse society. There are Programs like Sarva Shiksha Abhiyan have helped, but the progress hasn't reached every corner. This research aims to figure out which areas need more attention and suggest practical steps to close the literacy gap.

### Literature Background

There are several studies have explained about the literacy trends among Scheduled Castes and Scheduled Tribes in Tamilnadu, A brief review is worthwhile concerning to highlight what has already been done in the field and also highlights the socio-economic and structural factors influencing educational outcomes.

Narayana Swamy (2010) explained an upward trend in literacy rates among Scheduled Castes (SCs) and Scheduled Tribes (STs) in Tamil Nadu, by government initiatives like free education and scholarships. The study also reported persistent dropout rates, especially in rural areas, attributing them to economic hardships and social constraints.

Promila Yadava (2009) highlights the gender disparities in SC/ST communities and underlining the slower progress of female literacy. The study identified cultural norms and lack of educational infrastructure as significant barriers, particularly for girls in rural and tribal regions. The author advocated these disparities for gender-specific interventions to promote inclusive educational growth.

Das and Saha (2015) explained about the role of education in the socio-economic mobility of marginalized groups, highlights its potential to

alleviate poverty and improve living standards. Their research highlighted the significance of vocational training and skill development programs in enhancing employment opportunities for SC/ST populations.

Sharma (2018) assessed the spatial disparities in literacy of Tamilnadu, according to urban regions are consistently high performed rural areas in educational achievement. The Study attributed this disparity to better access to resources, infrastructure and qualified teachers in urban settings. Sharma called for equitable distribution of educational facilities to bridge the urban-rural divide.

Rani (2019) assessed the government schemes which effectively aimed for improving SC/ST literacy rates. The significant progress noted in her study and identified the gaps in policy implementation and addressing these challenges faced by Tribal communities. Rani recommended the localized and culturally sensitive approaches to enhance the impact of these schemes. The study highlights the need for targeted educational reforms, focusing on gender, spatial and community-specific challenges to achieve equitable literacy development among SC/ST communities in India.

### Aim

To study how literacy among Scheduled Castes and Scheduled Tribes in Tamil Nadu has changed over time and across different areas using Census data of 2001 and 2011

### Objectives

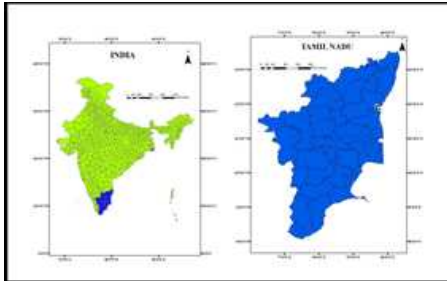
- To find out the literacy rates of SC and ST have changed from 2001 and 2011.
- To compare literacy levels in urban and rural areas.
- To look at differences in literacy between males and females among SC and ST communities.
- To suggest ways the government can improve education for Scheduled Castes and Scheduled Tribes.

### Study Area

Tamil Nadu is the tenth largest state in India and covers an area of 130,058 square kilometers (50,216 sq. mi). Geographically, the state extends between 8°4'N to 13°35'N latitude and 76°18'E to 13°20'E longitude. Tamilnadu, situated in the southern region of India and the sixth most populous in the country. It is bordered by Kerala to the west, Karnataka to the northwest, Andhra Pradesh to the north, the Bay of Bengal to the east and the Indian Ocean to the south. Cape Comorin (Kanyakumari), the southernmost tip of the Indian Peninsula is located in south of Tamil Nadu. It boasts a diverse terrain ranging from the coastal plains along the Bay of Bengal to the mountainous Western and

Eastern Ghats.

**Location Of The Study Area**



**Figure 1:** Location of the Study Area

In 2001, the literacy rate in Tamil Nadu was 73.45%. The general literacy rate for males was 83.28% and for females was 64.91%. The literacy rate for male SC was 63.2%, and female SC had a literacy rate of 58.6%. The overall literacy rate in Tamil Nadu was 80.09% in 2011. The literacy rate of males in Tamil Nadu was 86.77%, while that of females was 74.14%. Specifically, the literacy rate among Scheduled Castes (SC) in Tamil Nadu was 66.10%, while that of Scheduled Tribes (ST) was 59%.

**Research Methodology**

The present study relies on the secondary source of data. The Data has been collected from the Statistical handbook of Tamilnadu census 2001 and 2011, which provided detailed demographic and literacy statistics for Scheduled Castes and Scheduled Tribes across Tamilnadu. This study used Government educational reports to frame the policy recommendations for SC and ST communities.

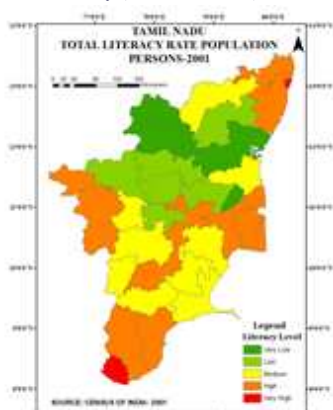
The Thematic maps were prepared using ArcGIS to analyze literacy rates in Tamilnadu of the census data for 2001 and 2011. These maps represent urban and rural literacy rates, as well as literacy rates among Scheduled castes (SC) and Scheduled Tribes (ST). Choropleth mapping techniques were used to visualize the variations in literacy levels.

**RESULTS AND DISCUSSIONS**

The analysis shows that literacy rates in Tamil Nadu improved notably between 2001 and 2011, highlighting the positive influence of government programs and overall social and economic development. But still significant gaps remain especially among rural and underprivileged communities. Scheduled Castes and Scheduled Tribes still face major obstacles, including poor infrastructure, lack of access to quality education, and ongoing economic hardships. While urban areas tend to have higher literacy levels, the gap between urban and rural areas is still wide.

To reduce these differences, a balanced plan is necessary. Strengthening infrastructure in village areas, enhancing teacher's training, and creating special programs for certain groups can help give everyone a fair chance. These results show the need for ongoing and strong efforts to make sure education is fair and open to everyone, especially for disadvantaged people in Tamil Nadu.

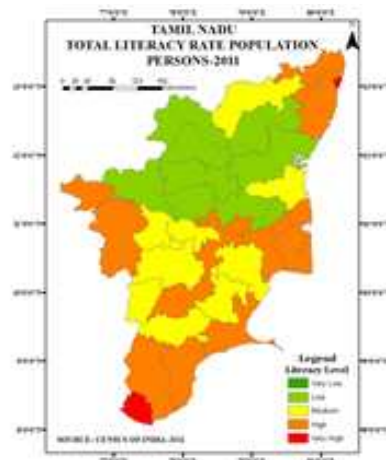
**Tamil Nadu- Total Literacy (Persons - 2001)**



**Figure 2:** Tamil Nadu Total Literacy (Persons- 2001)

The literacy rate in the year of 2001 was very high in Chennai and Kanniyakumari. The reason may be because Chennai is a metropolitan city and capital of Tamil Nadu, while in Kanniyakumari the literacy rate is high because it is in the border of Kerala. Kerala has the highest literacy in India. Therefore, it may have the impact in Kanniyakumari. Similarly the districts of Nilgiris, Tirunelveli, Thanjavur, Tiruchirappalli, Madurai etc have high literacy rate. This may be due to the urbanization as these districts are big towns and can be called industrial towns, and very low literacy rate in the districts of Villupuram, Dharmapuri and Krishnagiri.

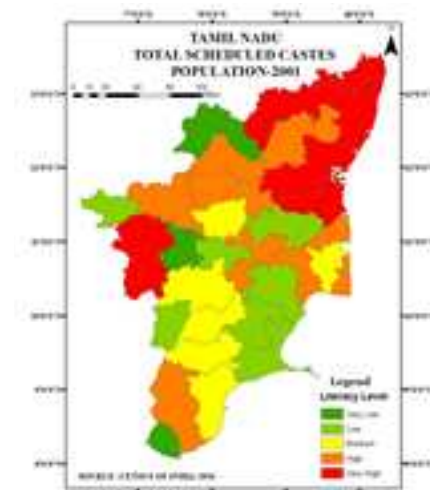
**Tamil Nadu - Total Literacy (Persons - 2011)**



**Figure 3:** Tamil Nadu: Total Literacy (Persons- 2011)

The map showcasing total literacy in Tamil Nadu in 2001 highlights significant regional variations. Higher literacy rates are evident in Chennai, Kanniyakumari, and other urbanized districts such as Nilgiris and Tiruchirappalli. These regions benefit from better educational infrastructure and urban development. On the contrary, districts like Villupuram and Dharmapuri exhibit lower literacy levels due to inadequate access to quality education and socioeconomic barriers.

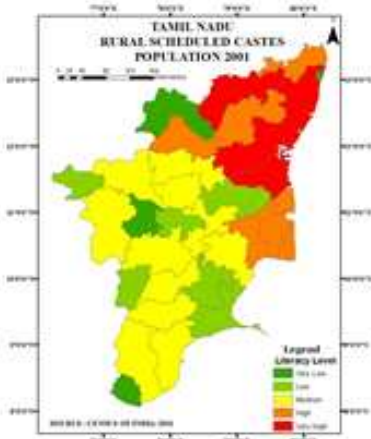
**Tamil Nadu - Total Scheduled Castes Population (2001)**



**Figure 4:** Tamil Nadu Total SC Population 2001

This map reveals the spatial distribution of the Scheduled Castes (SC) population in Tamil Nadu for 2001. Districts like Cuddalore, Coimbatore, and Vellore recorded higher SC populations due to historical demographic patterns. Regions with lower SC populations, such as Krishnagiri and Tiruppur, reflect varied settlement and migration trends.

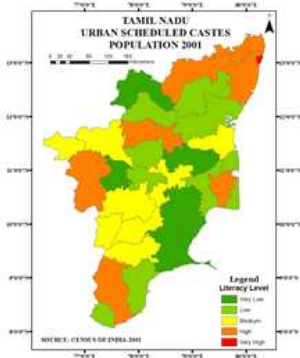
**Tamil Nadu - Rural Scheduled Castes Population (2001)**



**Figure 5:** Tamil Nadu: Rural SC Population (2001)

The Rural Scheduled Castes population in the year of 2001 was very high in the district of Cuddalore, Vellore, Kancheepuram and Villupuram. As per according to the 2001 census the lowest rural Scheduled Castes population are found in the districts of Chennai, Kanniyakumari Krishnagiri and Tiruupur. In these district there are found as very low rural Scheduled Castes population as per 2001 in Tamil Nadu. The moderate rural Scheduled Castes population found in Erode, Salem, Coimbatore, Namakkal, Dindigul, Madurai, Virudhunagar and Thoothukkudi districts etc.

**Tamil Nadu - Urban Scheduled Castes Population (2001)**

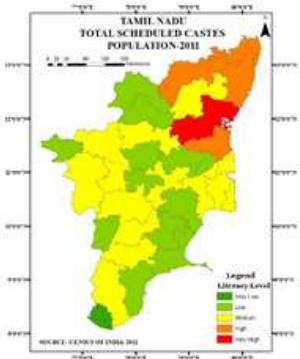


**Figure 6:** Tamil Nadu: Urban SC Population (2001)

The Urban Scheduled Castes population in the year of 2001 was very high in the district of Chennai. As per according to the 2001 census the lowest urban Scheduled Castes population are found in the districts of Krishnagiri, Perembalure, Pudukkottai, Sivaganga, Ramanathapuram and Tiruupur. In these district there are found as very low rural Scheduled Castes population as per 2001 in Tamil Nadu. The moderate urban Scheduled Castes population found in The Nilgiris, Erode, cuddalore, Tiruchirapalli, Dindigul, Madurai, Virudhunagar districts etc.

**Tamil Nadu - Total Scheduled Castes Population (2011)**

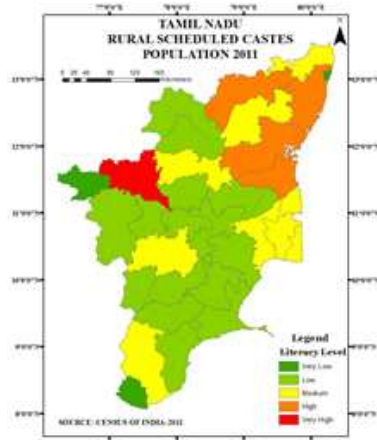
The total Scheduled Castes population in the year of 2011 was very high in the district of Villupuram.



**Figure 7:** Tamil Nadu: Total SC Population (2011)

As per according to the 2011 census the lowest total Scheduled Castes population are found in the districts of Kanniyakumari. The moderate total Scheduled Castes population found in Tiruvannamalai, Erode, Salem, Coimbatore, Thiruvapur, Dindigul, Madurai, Virudhunagar, Thanjavur, Nagapattinam, Tiruchirapalli and Tirunelveli districts etc.

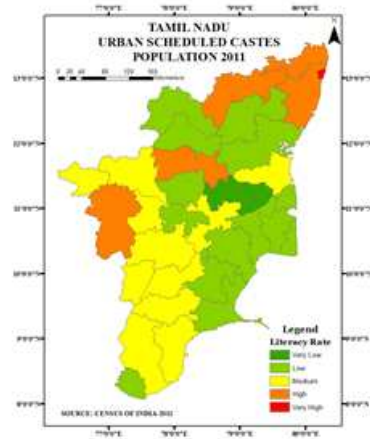
**Tamil Nadu - Rural Scheduled Castes Population (2011)**



**Figure 8:** Tamil Nadu: Rural SC Population (2011)

The Rural Scheduled Castes population in the year of 2011 was very high in the district of Erode. As per according to the 2011 census the lowest rural Scheduled Castes population are found in the districts of Chennai, The Nilgiris and Kanniyakumari. In these district there are found as very low rural Scheduled Castes population as per 2011 in Tamil Nadu. The moderate rural Scheduled Castes population found in Thiruvallur, Tiruvannamalai, Salem, Namakkal, Dindigul, Tirunelveli, Thanjavur, Thiruvapur and Nagapattinam districts etc.

**Tamil Nadu - Urban Scheduled Castes Population (2011)**



**Figure 9:** Tamil Nadu: Urban SC Population (2011)

Urban Scheduled Castes population in the year of 2011 was very high in the district of Chennai because it is metropolitan and capital city of Tamil Nadu. As per according to the 2011 census the lowest urban Scheduled Castes population are found in the districts of Perembalure and Ariyalur. In these district there are found as very low rural urban Scheduled Castes population as per 2011 in Tamil Nadu. The moderate urban Scheduled Castes population found in The Nilgiris, Erode, cuddalore, Tiruchirapalli, Dindigul, Madurai, Virudhunagar districts etc.

**Tamil Nadu - Total Scheduled Tribes Population (2001)**

The total Scheduled Tribes population in the year of 2001 was very high in the district of Salem. As per according to the 2001 census the lowest total Scheduled Tribes population are found in the districts of Krishnagiri, Karur and Tiruupur etc. In these district there are found as very low total Scheduled Tribes population as per 2001 in Tamil Nadu.

The moderate total Scheduled Tribes population found in Thiruvallur, Kancheepuram, Tiruchirappalli, The Nilgiris, Erode and Coimbatore districts.

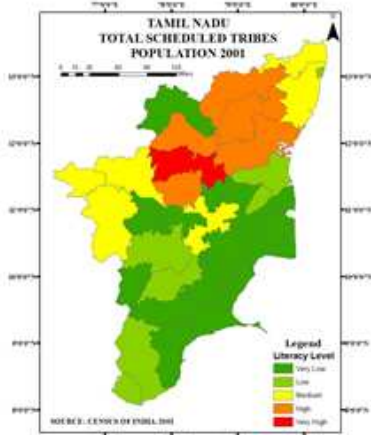


Figure 10: Tamil Nadu: Total ST Population (2001)

**Tamil Nadu - Rural Scheduled Tribes Population (2001)**

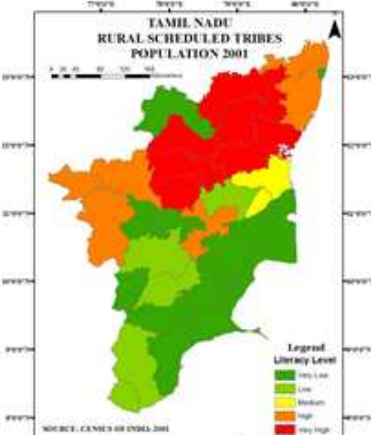


Figure 11: Tamil Nadu: Rural ST population (2001)

The Rural Scheduled Tribes population in the year of 2001 was very high in the districts of Dharmapiri, Salem, Namakkal, Vellore, Tiruvannamalai and Villupuram. As per according to the 2001 census the lowest rural Scheduled Tribes population are found in the districts of Chennai, Krishnagiri, Karur, Theni, Nagapattinam, Pudukkottai, Sivaganga, Ramanathapuram and Tiruupur etc. In these district there are found as very low rural Scheduled Tribes population as per 2001 in Tamil Nadu. The moderate rural Scheduled Tribes population found in Cuddalore and Ariyalur districts.

**Tamil Nadu - Urban Scheduled Tribes Population (2001)**

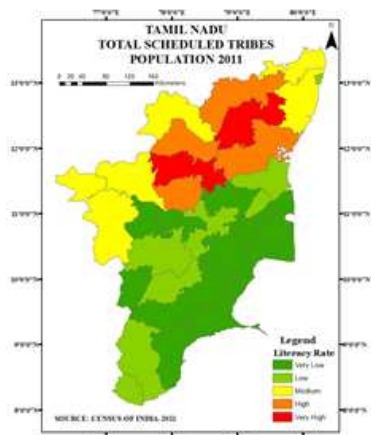


Figure 12: Tamil Nadu: Urban ST Population (2001)

Urban Scheduled Tribes population in the year of 2001 was very high in the districts of Thiruvallur, Kancheepuram, The Nilgiris and Coimbatore. As per according to the 2001 census the lowest urban Scheduled Tribes population are found in the districts of Krishnagiri, Namakkal, Theni, Perembalur, Tiruppur, Pudukkottai, Sivaganga, and Ramanathapuram etc. In these district there are found as very low urban Scheduled Tribes population as per 2001 in Tamil Nadu. The moderate urban Scheduled Tribes population found in Tiruvannamalai, Erode, Thanjavur, Dindigul Madurai and Thoothukudi districts.

**Tamil Nadu - Total Scheduled Tribes Population (2011)**

The total Scheduled Tribes population in the year of 2011 was very high in the district of Salem and Tiruvannamalai. As per according to the 2011 census the lowest total Scheduled Tribes population are found in the districts of Karur, Perambalur, Theni, and Tiruppur etc. In these district there are found as very low total Scheduled Tribes population

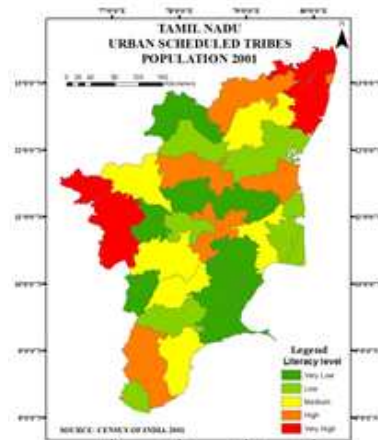


Figure 13: Tamil Nadu: Total ST population (2011)

As per 2011 in Tamil Nadu. The moderate total Scheduled Tribes population found in Thiruvallur, Kancheepuram, The Nilgiris, Erode, Krishnagiri and Coimbatore districts.

**Tamil Nadu - Rural Scheduled Tribes Population (2011)**

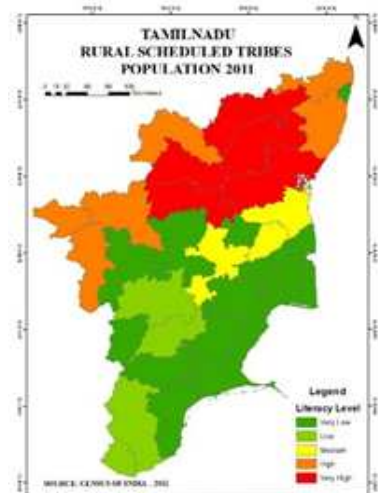


Figure 14: Tamil Nadu: Rural ST Population 2011

The Rural Scheduled Tribes population in the year of 2011 was very high in the districts of Dharmapiri, Salem, Namakkal, Vellore, Tiruvannamalai and Villupuram. As per according to the 2011 census the lowest rural Scheduled Tribes population are found in the districts of Chennai, Krishnagiri, Karur, Theni, Nagapattinam, Pudukkottai, Sivaganga, Ramanathapuram and Tiruupur etc. In these district there are found as very low rural Scheduled Tribes population as per 2011 in

Tamil Nadu. The moderate rural Scheduled Tribes population found in Cuddalore and Ariyalur districts.

### Tamil Nadu - Urban Scheduled Tribes Population (2011)

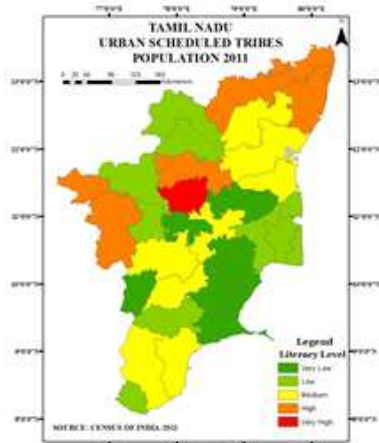


Figure 15: Tamil Nadu: Urban ST population (2011)

The Urban Scheduled Tribes population in the year of 2011 was very high in the district of Namakkal. As per according to the 2011 census the lowest urban Scheduled Tribes population are found in the districts of Ariyalur, Perembalur, Theni, Karur, Pudukkottai, Sivaganga, and Ramanathapuram etc. In these district there are found as very low urban Scheduled Tribes population as per 2011 in Tamil Nadu. The moderate urban Scheduled Tribes population found in Tiruvannamalai, Villupuram, Cuddalore, Tiruchirappalli, Dindigul Madurai and Thoothukudi districts.

### Literacy Rates In Tamil Nadu 2001 And 2011

In 2001, Tamil Nadu's literacy rates showed a clear trend. The highest literacy was found in Chennai and Kanniyakumari. Chennai had good schools and services because it is the main city. Kanniyakumari was close to Kerala, the state with the highest literacy in India which contributed to the literacy levels of Kanyakumari. Urban districts like Nilgiris, Tirunelveli, Thanjavur, and Tiruchirappalli also had good literacy rates due to better education access and industrial growth. On the other hand, districts like Villupuram, Dharmapuri, and Krishnagiri were behind because of poor infrastructure, economic issues, and weak access to good education.

By 2011, literacy had improved across Tamil Nadu. Chennai and Kanniyakumari stayed at the top, helped by government efforts and city growth. But rural districts like Villupuram and Dharmapuri still faced problems with education. This shows the need for focused plans to fix the gap between rural and city literacy. The 10-year trend shows how important infrastructure, wealth, and strong policies are in raising literacy levels.

### Scheduled Castes Population Analysis

In 2001, the Scheduled Caste (SC) population was found in districts of Cuddalore, Coimbatore, and Vellore. These areas had large Scheduled Caste communities for many years due to cultural and population reasons. In rural areas, Schedule caste numbers were high in farming districts like Cuddalore and Villupuram, where people still relied on traditional jobs. Chennai was different, with a large SC group in the city, as many had moved there for better jobs and education.

By 2011, Villupuram had the largest SC population among all districts, showing changes in population and local growth. SC numbers stayed high in rural farming districts, while more SC people started living in cities. This shift to urban areas showed some improvement in their lives, but also showed the strong need for fair city planning so that everyone can get equal access to services and support.

### Scheduled Tribes Population Analysis

In 2001, most of the Scheduled Tribes (ST) lived in districts like Salem, Dharmapuri, and Namakkal. These places are far from cities and have long been home to tribal groups. Many Scheduled Tribes people lived in forest and hill areas, showing they still depend on old ways of living and are not well linked to modern growth.

By 2011, Salem and Tiruvannamalai had the most Scheduled Tribes

people, with many still living in rural tribal zones. In cities, Scheduled Tribes numbers grew a bit, mainly in work centers like Coimbatore and the Nilgiris, showing they are slowly joining city life. But Scheduled Tribes groups still have low learning levels and few job chances, so special help is still needed.

### Policy Recommendations

#### The Following Policy Recommendations May Be Considered For The Overall Development Of Education In The State:

- **Strengthening Rural Educational Infrastructure:** Invest in developing and upgrading schools in underserved areas to ensure students have access to basic facilities like libraries, science laboratories and digital resources. These improvements will create a supportive learning environment and bridge the gap between urban and rural education system.
- **Targeted Teacher Requirement Training:** To focus on the recruiting qualified teachers for rural and tribal areas while providing the specialized training to address the unique challenges of teaching marginalized communities.
- **Implement Community-Specific Literacy Programs:** Introduce tailored literacy initiatives, including adult education programs for Scheduled Castes and Tribes, to address intergenerational educational gaps.
- Vocational institutions should enable the future workforce to engage atleast in the 'development' component of research and development and thereby equips their graduates with core skills of critical thinking. Communication, Collaboration and creativity to enable them to continuously innovate to adapt to new environment.
- **Enhance Access to Digital Learning:** Develop public-private partnerships to distribute digital devices and internet access in rural and tribal regions, fostering e-learning opportunities.
- **Promote Financial Support Schemes:** Expand scholarship programs and financial aid for SC/ST students to reduce dropout rates and encourage higher education enrollment.
- **Regular Evaluation of Welfare Programs:** Establish mechanisms for periodic assessments of existing welfare schemes to identify gaps and improve policy effectiveness.
- The Manpower Planning should be such that the demand for and supply of the educated manpower should be dovetailed with each other. Failing to do so, there will be a peculiar situation of shortages for critical skill on one hand and on the other surplus in availability of general educated manpower; There should be a cordial liaison between the educational institutions and industry.
- The State lacks current and comprehensive database for evidence based policy making and effective planning. It would be necessary to publish a comprehensive data book on the landscape the higher education with complete facts, figures and trends.

### CONCLUSION

The analysis reveals notable improvements in literacy rates across Tamil Nadu from 2001 to 2011, reflecting the impact of government initiatives and socioeconomic progress. However, disparities persist, particularly in rural and marginalized communities. Scheduled Castes and Tribes continue to face challenges such as inadequate infrastructure, limited access to quality education, and socioeconomic barriers. Urban areas exhibit better literacy outcomes, but the rural-urban divide remains significant.

To bridge these gaps, a multi-pronged approach is essential. Strengthening rural educational infrastructure, enhancing teacher training, and implementing community-specific programs can promote equitable growth. The findings underline the importance of sustained efforts to ensure inclusive educational development for marginalized populations in Tamil Nadu.

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