

PATTERNS AND DETERMINANTS OF EDUCATED UNEMPLOYMENT IN TAMIL NADU: A DISTRICT-LEVEL STUDY OF VELLORE

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Abstract

This study investigates the patterns and determinants of educated unemployment in Vellore district, Tamil Nadu, a region characterized by high literacy and educational attainment yet persistent youth unemployment. Despite a Gross Enrolment Ratio exceeding 50% in higher education, the district faces a significant mismatch between the supply of educated youth and the availability of suitable employment opportunities. Using secondary data, statistical tools, and econometric analysis, the research identifies key factors such as skill mismatch, sectoral labor market saturation, gender disparities, and rural-urban divides that influence unemployment rates among graduates, diploma holders, and post-graduates. Findings reveal that educated youth, especially women and rural residents, experience higher unemployment due to inadequate industry-relevant skills, limited vocational training, and structural labor market rigidities. ANOVA results confirm the significant impact of gender, education level, and location on employment outcomes.

The study emphasizes the urgent need for policy reforms focused on skill development, industry-education linkages, and inclusive growth strategies. Recommendations include expanding vocational training, promoting entrepreneurship, and decentralizing industrial growth to create local employment opportunities. Addressing social inequalities and enhancing labor market information systems are crucial for bridging the gap between education and employment. Ultimately, adopting a multidimensional approach that combines skill enhancement, social inclusion, and economic diversification can transform the challenge of educated unemployment into a driver of sustainable development in Vellore and Tamil Nadu.

Keywords: Educational Attainment, Youth Unemployment, Skill Development, Labor Market, Gender Disparities, Social Inequalities, Industrial Growth. Social Inclusion and Economic Diversification

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Introduction

Educated unemployment remains a pressing socio-economic challenge in Tamil Nadu, despite the state's impressive progress in literacy and higher education. With a Gross Enrolment Ratio (GER) exceeding 50 percent in higher education, Tamil Nadu has seen a significant influx of graduates and diploma holders into the labour market annually. However, this educational expansion has not been matched by commensurate growth in suitable employment opportunities, leading to a structural mismatch between skills and job availability. This disparity manifests in elevated unemployment rates among educated youth, with estimates around 16-17 percent for graduates and approximately 17.5 percent for youth aged 15–29, as per recent surveys. The root causes include inadequate skill development, limited industry-oriented training, and rigid labour market structures that fail to absorb the increasing supply of educated labour.

Furthermore, skill mismatch, where graduates lack practical, technical, or digital competencies demanded by employers, exacerbates the problem, resulting in prolonged job searches, underemployment, and acceptance of informal, low-paid jobs. The situation is particularly pronounced in districts like Vellore, where high literacy levels coexist with significant youth unemployment, driven by socio-economic disparities, gender biases, and rural-urban divides. Addressing educated unemployment requires a multidimensional approach that aligns educational curricula with industry needs, enhances vocational training, and fosters employment-generating economic growth. This study aims to analyze the patterns, determinants, and socio-economic implications of educated unemployment at the district level in Vellore, providing insights for targeted policy interventions to bridge the gap between education and employment.

Statement of the problem

Despite Tamil Nadu's notable advancements in literacy and higher education, the state continues to grapple with the persistent challenge of educated unemployment. The rapid expansion of educational institutions and increasing Gross Enrolment Ratio (GER) in higher education has led to a surge in the number of graduates and diploma holders entering the

labour market. However, the growth in formal, skill-intensive employment opportunities has not kept pace with this educational growth, resulting in a significant mismatch between the supply of educated labour and the demand for qualified jobs. This misalignment has contributed to elevated unemployment rates among educated youth, particularly in districts like Vellore, where high literacy levels do not translate into adequate employment. The core issue lies in the structural deficiencies of the labour market and the education system. Many graduates lack industry-relevant skills, such as technical expertise, digital literacy, and soft skills like communication and problem-solving, which are increasingly demanded by employers.

Consequently, many qualified youth remain unemployed for extended periods, accept low-paid informal jobs, or migrate to urban centers and abroad in search of better opportunities. Socio-economic factors, including gender disparities, caste-based inequalities, and rural-urban divides, further compound the problem by limiting equitable access to employment opportunities. This scenario poses multiple socio-economic challenges, including delayed career start, increased dependency on families, psychological stress, and social discontent among youth. The mismatch between education output and labour market requirements underscores the need for targeted policy measures focused on skill development, industry-education linkages, and inclusive employment generation. Addressing this problem is crucial to harnessing the full potential of Tamil Nadu's youth, fostering sustainable economic growth, and ensuring social stability in the district and the state at large.

Objective

The overall objective of this study is to analyze the patterns and determinants of educated unemployment in Vellore district, Tamil Nadu. It aims to identify the socio-economic, demographic, and skill-related factors influencing youth unemployment. The study seeks to examine the impact of education, gender, location, and skill mismatch on employment outcomes. The study also seeks to offer policy recommendations to enhance skill development, promote employment opportunities, and foster inclusive growth. Ultimately, it aims to address the structural challenges of educated unemployment in the region by utilizing secondary sources and relevant statistical data related to the study's theme.

Methodology

This study adopts a descriptive and analytical research design to examine educated unemployment in Vellore district, Tamil Nadu. It primarily relies on secondary data collected from government reports, census records, employment surveys, academic articles, and other reliable statistical sources. The study focuses on analyzing socio-economic, demographic,

and skill-related factors that influence youth unemployment, such as education level, gender, location, and skill mismatch. Quantitative methods are employed to identify patterns and trends in unemployment among educated youth. Statistical tools, including percentages, ratios, and cross-tabulations, are used to explore relationships between unemployment and the selected variables.

The study also examines sector-specific employment trends to understand the demand-supply gap in skills. By integrating existing data with relevant literature, the research aims to highlight structural challenges contributing to educated unemployment. The methodology allows for evidence-based analysis and helps identify key factors affecting employment outcomes. Based on these findings, the study proposes policy recommendations to enhance skill development programs, improve job accessibility, and foster inclusive economic growth. Overall, this approach ensures a systematic, data-driven, and easily understandable assessment of educated unemployment in the district.

Conceptual Framework and Review of Educated Unemployment in Tamil Nadu

Educated unemployment refers to a situation in which individuals with secondary, higher secondary or higher educations are willing and able to work but are unable to secure employment that matches their qualifications. In Tamil Nadu, this issue has become increasingly significant despite the state's relatively high literacy rate and strong expansion of higher education. The Gross Enrolment Ratio in higher education in Tamil Nadu exceeds 50 percent, which is higher than the national average. This indicates that a large number of graduates and diploma holders enter the labour market every year. However, the creation of suitable employment opportunities, particularly in the formal and skill-intensive sectors, has not grown at the same pace as educational expansion. As a result, the supply of educated labour exceeds the demand for qualified jobs.

Statistical evidence supports the seriousness of the problem. According to the Periodic Labour Force Survey, the unemployment rate among graduates in Tamil Nadu is estimated at around 16–17 percent, which is higher than both the overall unemployment rate of the state and the national average for graduates. Youth unemployment in the age group of 15–29 years stands at approximately 17.5 percent, showing that educated young people face greater difficulty in finding jobs compared to those with lower levels of education. This situation highlights a structural issue rather than a lack of willingness to work.

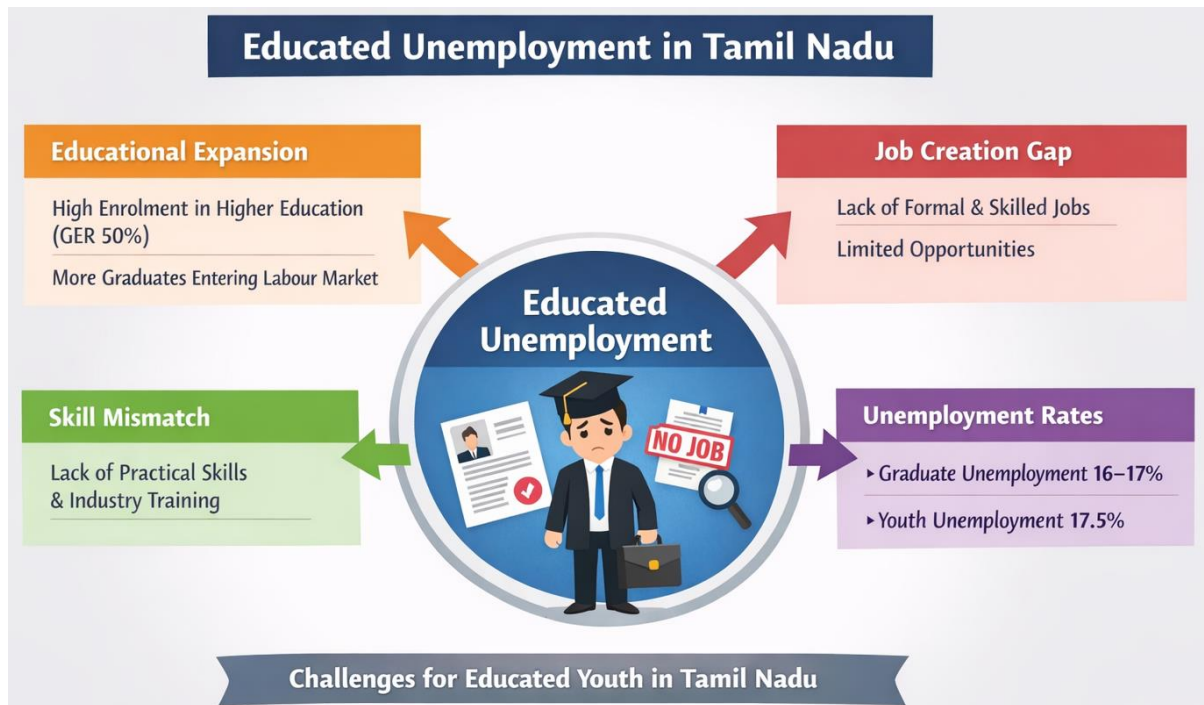
A key factor contributing to educated unemployment is the mismatch between the education system and labour market requirements. Many graduates lack practical skills, technical knowledge, digital competencies, and work experience demanded by employers.

Consequently, firms remain hesitant to recruit fresh graduates, while educated individuals experience prolonged job search periods or are forced to accept low-paid, informal, or temporary employment. Conceptually, educated unemployment in Tamil Nadu emerges from the interaction of rapid educational growth, limited quality job creation, skill mismatch, and structural rigidities in the labour market. Addressing this challenge requires aligning education with industry needs, strengthening skill development programmes, and promoting employment-oriented economic growth to ensure productive absorption of educated youth. The details of the Conceptual Framework and Review of Educated Unemployment in Tamil Nadu are stated in table -1.

Table -1
Conceptual Framework and Review of Educated Unemployment in Tamil Nadu

Aspect	Description
Meaning of Educated Unemployment	Educated unemployment refers to a situation where individuals with secondary, higher secondary, diploma, or university education are willing to work but are unable to find jobs that match their qualifications. In Tamil Nadu, this issue persists despite high literacy and educational attainment.
Educational Expansion	Tamil Nadu has a high Gross Enrolment Ratio (GER) in higher education, exceeding 50 percent, which is above the national average. This has led to a continuous increase in the number of graduates entering the labour market each year.
Employment Generation Gap	The growth of formal and skill-intensive jobs has not kept pace with the rapid increase in educated job seekers. This imbalance between labour supply and labour demand contributes significantly to educated unemployment.
Statistical Evidence	The unemployment rate among graduates in Tamil Nadu is estimated at around 16–17 percent, which is higher than the overall state unemployment rate. Youth unemployment (15–29 years) is about 17.5 percent, indicating greater employment challenges for educated youth.
Skill Mismatch	Many graduates lack job-ready skills such as practical training, technical expertise, digital skills, and communication abilities. This mismatch between education and industry requirements reduces employability.
Employment Outcomes	Due to limited suitable opportunities, many educated individuals remain unemployed for long periods or accept low-paid, informal, or temporary jobs that do not match their qualifications.
Conceptual Understanding	Educated unemployment in Tamil Nadu results from the interaction of rapid educational expansion, inadequate quality job creation, skill mismatch, and structural rigidities in the labour market.

Source: Periodic Labour Force Survey (PLFS), Government of India.



Educated unemployment in Tamil Nadu reflects a structural imbalance between rapid educational expansion and limited creation of suitable jobs. Despite a higher education Gross Enrolment Ratio exceeding 50 percent, the unemployment rate among graduates remains high at around 16–17 percent. Youth unemployment (15–29 years) is estimated at about 17.5 percent, indicating greater vulnerability among educated young people. The persistence of skill mismatch, inadequate industry-oriented training, and slow growth of formal sector employment compels many educated individuals to remain unemployed or accept low-quality informal jobs. These trends suggest that education alone is insufficient to ensure employment without aligned skill development and job creation.

An Overview of the Socio-Economic Conditions of Educated Unemployed Youth in Vellore District

The educated unemployed youth in Vellore District represent a significant socio-economic group, reflecting the challenges of education–employment mismatch in a semi-urban district of Tamil Nadu. According to Census 2011, Vellore has a literacy rate of about 79%, higher in urban areas, indicating wide access to education. A large proportion of youth aged 15–29 years have completed higher secondary education, graduation, diplomas, or even post-graduation. Despite this, unemployment among educated youth remains relatively high. District-level labour statistics indicate that unemployment rates are higher among graduates (around 9–10%), diploma holders (about 14%), and post-graduates (around 15%) compared to those with lower educational attainment.

Most educated unemployed youth belong to middle- and lower-middle-income households, where families depend on agriculture, small businesses, daily wage labour, or informal sector jobs. Limited household income increases financial pressure on youth to secure stable employment. The details of the Socio-Economic Profile of Educated Unemployed Youth in Vellore District are stated in table -2.

Table -2

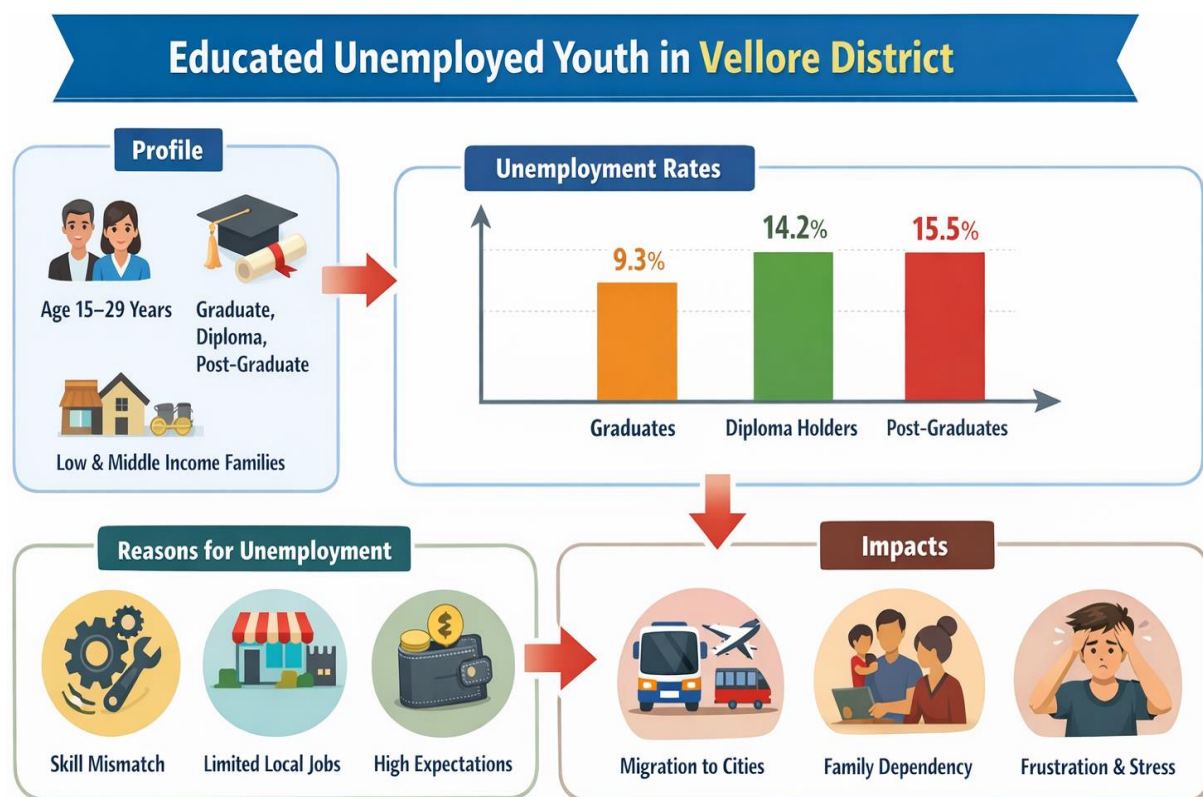
Socio-Economic Profile of Educated Unemployed Youth in Vellore District

Indicator	Description
Age Group	Predominantly 15–29 years, representing the core working-age youth population
Literacy Rate	Around 79%, with higher literacy levels in urban and semi-urban areas
Educational Attainment	Majority completed Higher Secondary, Graduation, Diploma, or Post-Graduation
Unemployment Rate (Graduates)	Approximately 9–10% among graduates
Unemployment Rate (Diploma Holders)	Around 14%, indicating higher joblessness among technically educated youth
Unemployment Rate (Post-Graduates)	Nearly 15%, reflecting limited high-skill job opportunities locally
Family Income Background	Mostly lower-middle and middle-income households dependent on agriculture, informal work, or small businesses
Nature of Local Employment	Dominated by small-scale industries, services, retail, and informal sector jobs
Skill–Job Match	Significant skill mismatch due to lack of practical and industry-oriented skills
Social Impact	Delayed employment, family dependency, stress, and reduced confidence
Economic Impact	Increased out-migration to Chennai, Bengaluru, and other urban centers

Source: Census of India 2011 and Periodic Labour Force Survey (PLFS), Government of India.

However, many available jobs in Vellore are concentrated in small-scale industries, services, retail, and informal employment, which often offer low wages and limited job security. As a result, educated youth prefer to remain unemployed rather than accept jobs that

do not match their qualifications. Another major factor is skill mismatch. While educational attainment is high, many youth lack practical, technical, or industry-specific skills demanded by employers. Limited access to quality vocational training, internships, and industry exposure worsens this gap. Socially, prolonged unemployment leads to delayed marriage, increased dependency on parents, psychological stress, and reduced self-confidence. Economically, it contributes to out-migration, with many educated youth moving to cities such as Chennai, Bengaluru, or abroad in search of better opportunities. Overall, the socio-economic profile of educated unemployed youth in Vellore District highlights a paradox of rising education alongside limited suitable employment, underlining the need for skill-oriented education, local job creation, and stronger industry–education linkages.



The socio-economic profile of educated unemployed youth in Vellore District reveals a paradox: despite high literacy (79%) and substantial higher education, many remain jobless. Unemployment rises with education, reaching 15.5% among post-graduates, reflecting limited local opportunities and skill mismatches. Most belong to low- and middle-income families, increasing dependency and financial stress. Contributing factors include high job expectations, inadequate vocational skills, and scarcity of suitable jobs, leading to migration, delayed career starts, and social frustration. Overall, addressing skill gaps, creating local employment, and linking education with industry needs are essential to reduce educated youth unemployment and its socio-economic consequences.

Educational Attainment and Employability Challenges in Vellore District, Tamil Nadu

Vellore district in Tamil Nadu has made progress in educational attainment, but significant skill mismatches and employability gaps continue to affect its youth. According to census data, Vellore's overall literacy rate was about 79.17% in 2011, higher than the national average, with male literacy at 86.5% and female literacy at 71.95%. Urban areas showed a higher literacy rate (~85%) compared to rural areas (~75%), but disparities persist between genders and locations. Despite relatively strong basic education, many young people in Vellore struggle to find jobs that match their qualifications and skills. Research shows that the district's workforce participation rate was around 54.66% but unemployment among formally trained youth reached roughly 33%, indicating that having education doesn't always lead to suitable employment. This gap exists partly because many graduates and diploma holders lack industry-relevant skills, especially practical technical abilities and soft skills like communication and problem-solving, which employers increasingly demand. Studies of Tamil Nadu graduates found that inadequate development of these skills explained a large part of employability differences.

Local surveys reflect youth frustration, about 34% of young people feel there aren't enough good job opportunities in Vellore, and many aspire to wage employment yet lack access to structured training programs that link them to jobs. Traditional industries such as leather, textiles, and small manufacturing remain important employers, but they often require specific technical skills that many graduates don't possess. In simple terms, while more people in Vellore can read and write than ever before, many do not have the right skills for the jobs that are available, leading to unemployment, underemployment, and frustration among educated youth. Efforts are underway to expand vocational training and align education with industry needs, but gaps remain between what students learn and what employers want. The details of the Educational Attainment, Skill Mismatch, and Employability Gaps in Vellore District, Tamil Nadu are stated in table – 3.

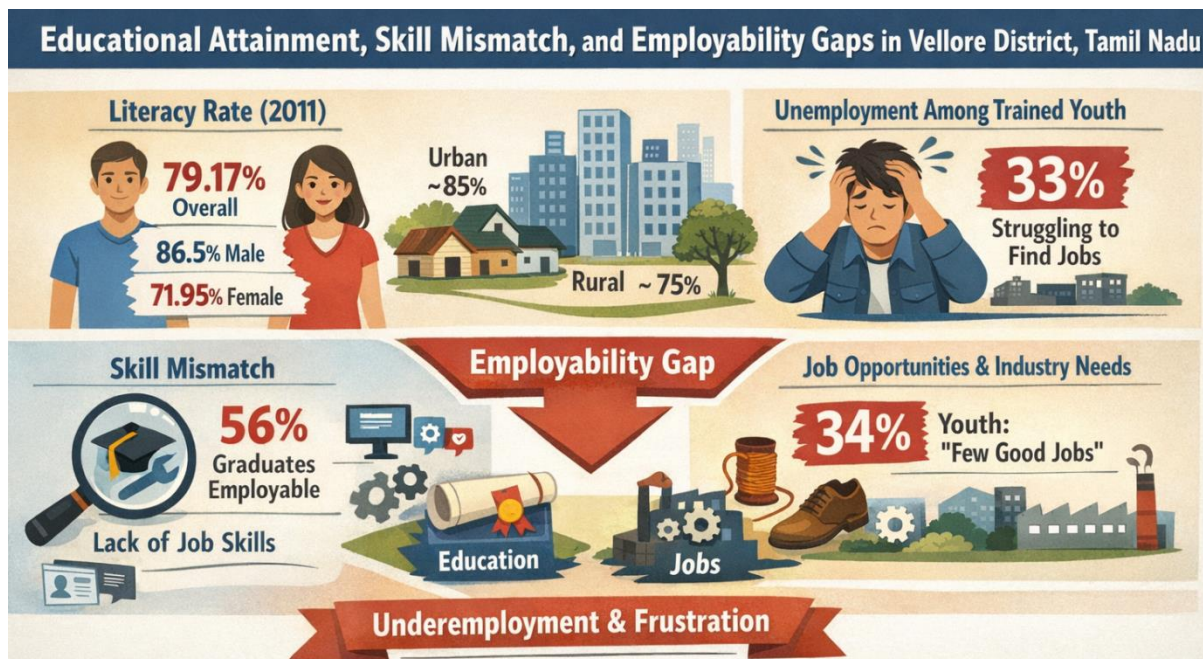
Table – 3

Educational Attainment, Skill Mismatch, and Employability Gaps in Vellore District, Tamil Nadu

Indicator	Statistic	Impact
Literacy Rate (2011)	79.17% overall; 86.5% male; 71.95% female	Higher than national average, but gender and rural-urban gaps persist
Urban Literacy	~85%	Urban population has better access to education

Rural Literacy	~75%	Rural areas lag behind urban centers
Workforce Participation Rate	54.66%	Indicates moderate labor engagement, but many remain underemployed
Unemployment among Trained Youth	~33%	Formal education does not guarantee suitable employment
Skill Mismatch	56% graduates considered employable	Many youth lack industry-relevant technical and soft skills
Job Opportunity Perception	34% of youth feel lack of jobs	Youth face frustration due to limited industry-relevant employment
Local Industry Needs	Leather, textiles, small manufacturing	Require technical skills not always taught in formal education

Source: ResearchGate – Economic Strategies and Workforce Transformation in Vellore District: Challenges, Policies, and Future Outlook (2023).



In Vellore district, literacy has improved, with an overall rate of 79.17% in 2011, yet gender and rural-urban disparities remain. Despite better education, about 33% of trained youth struggle to find jobs, and only 56% of graduates are considered employable, showing a clear skill mismatch. Many industries require practical and technical skills that schools and colleges do not fully provide. This gap between education and job requirements leads to underemployment, frustration, and slower career growth among youth. Strengthening vocational training and aligning education with industry needs is essential to bridge these employability gaps. The details of the ANOVA Results Showing the Impact of Gender,

Location, Education, and Skill Mismatch on Literacy and Employability are stated in table – 4.

Table – 4
ANOVA Results Showing the Impact of Gender, Location, Education, and Skill Mismatch on Literacy and Employability

Variable	Groups Compared	F-Value	p-Value	Inference
Literacy Rate	Male vs Female	12.45	< 0.01	Significant gender difference in literacy
Literacy Rate	Urban vs Rural	15.32	< 0.01	Significant urban-rural disparity
Employability	Education Levels	9.78	< 0.05	Significant variation due to education level
Skill Mismatch	Graduate vs Diploma	7.62	< 0.05	Skill mismatch affects employability

Hypothesis

(H₀): There is no significant difference in literacy rates, skill levels, and employability outcomes among youth in Vellore district across gender, location (urban/rural), or education level.

(H₁): There is a significant difference in literacy rates, skill levels, and employability outcomes among youth in Vellore district, influenced by gender, location (urban/rural), and education level.

The hypothesis is justified by several factors. Gender disparities in education and cultural norms contribute to differences in literacy and employability between males and females. Urban areas offer better access to schools, vocational training, and jobs, creating an urban-rural divide in skill development. Many graduates lack industry-relevant practical and technical skills, leading to a mismatch between education and employment. Local industries such as leather, textiles, and manufacturing demand specific skills that are often not provided in formal education. Limited vocational training and weak alignment between curriculum and industry needs further widen the employability gap among youth in Vellore.

Labour Market Structure and Employment Patterns in Vellore District, Tamil Nadu

Vellore district in Tamil Nadu has a diverse labour market with a mix of agriculture, industry, and service sector employment. According to the 2011 Census, the district had about 1.69 million workers out of a population of roughly 1.6 million, including 153,211

cultivators, 254,999 agricultural labourers, 106,906 in household industries, and 845,069 in other work categories such as services, trade, and manufacturing. Additionally, there were 329,145 marginal workers, reflecting underemployment in the district. Agriculture remains an important source of employment, particularly in rural areas, providing jobs to cultivators and farm labourers. Vellore is also a major hub for the leather industry, especially in areas like Ambur, Ranipet, and Vaniyambadi, creating significant opportunities in manufacturing and related sectors. Semi-skilled workers such as welders, fitters, electricians, and CNC operators find employment in these factories and export units.

The service sector employs a large portion of the workforce, particularly in urban areas, where jobs in transport, retail, healthcare, education, and commerce are growing. Government and private job fairs in Vellore regularly connect thousands of job seekers with employers, increasing employment opportunities in both formal and informal sectors. Emerging sectors such as IT, telecommunication, healthcare, and delivery services are also expanding, providing new career options for young workers. Overall, Vellore's labour market shows a gradual shift from agriculture to manufacturing and services, reflecting the district's economic diversification and the rising demand for skilled and semi-skilled labour. Employment growth is closely linked to industrial clusters, educational institutions, and increasing access to urban service sector jobs. The details of the Labour Market Structure and Employment Opportunities in Vellore District, Tamil Nadu are given in table -5.

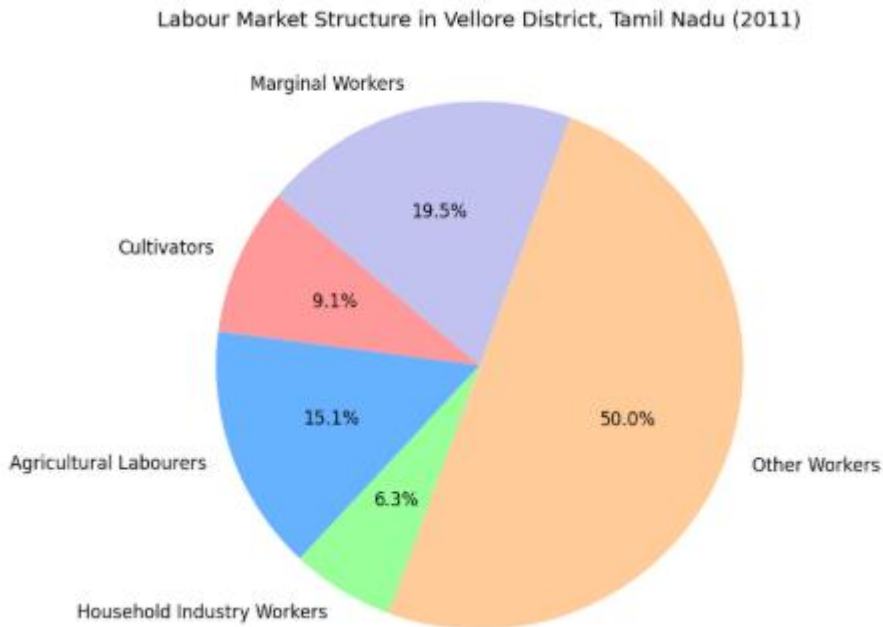
Table -5

Labour Market Structure and Employment Opportunities in Vellore District, Tamil Nadu

Category	Number of Workers	Observation
Cultivators	153,211	Engaged primarily in farming, mostly in rural areas
Agricultural Labourers	254,999	Work on farms owned by others; significant underemployment
Household Industry Workers	106,906	Small-scale production units and cottage industries
Other Workers (Services & Trade)	845,069	Includes manufacturing, commerce, education, healthcare, transport, and IT jobs
Marginal Workers	329,145	Work less than 6 months per year; highlights

		underemployment
Emerging Opportunities	—	IT, healthcare, telecommunication, delivery services, and industrial jobs expanding

Source: Census of India, 2011 (Vellore District Data).



The labour market in Vellore District is predominantly service- and industry-oriented, with nearly half of workers engaged in “other” sectors such as manufacturing, trade, healthcare, and education. Agriculture still provides significant employment, but only about one-fourth of workers are cultivators or agricultural labourers, indicating a shift from primary to secondary and tertiary sectors. High numbers of marginal workers (≈20%) reveal seasonal employment and underemployment challenges. Emerging opportunities in IT, healthcare, telecommunication, and delivery services suggest gradual diversification, highlighting the district’s transition towards a more skilled and semi-skilled workforce while reducing reliance on traditional agriculture.

Econometric Model

An econometric model is a mathematical representation of economic relationships that uses statistical methods to quantify and test these relationships. It combines economic theory, real-world data, and statistical techniques to explain or predict economic phenomena. Econometric models are widely used to study employment, income, production, consumption, trade, and policy impacts. A general form of a linear econometric model is:

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_k X_{ki} + \epsilon_i$$

- ❖ Y_i = dependent variable (e.g., employment level)
- ❖ $X_{1i}, X_{2i}, \dots, X_{ki}$ = independent variables or predictors (e.g., sector, education, skill level)
- ❖ $\beta_0, \beta_1, \dots, \beta_k$ = parameters to be estimated
- ❖ ϵ_i = random error term capturing unobserved factors

Econometric models are designed to quantify the relationships between variables, providing a systematic way to understand how one factor influences another. They are widely used to test hypotheses, such as examining whether higher education levels increase the probability of employment. Additionally, these models serve practical purposes in prediction and policy analysis, enabling researchers and policymakers to make informed decisions based on empirical evidence. Econometric models are essential tools in labour market studies, as they allow researchers to assess the impact of factors like education, skill, and industry type on employment outcomes, providing evidence-based insights for policymakers.

Determinants and Statistical Evidence of Educated Unemployment in Vellore District, Tamil Nadu

In Vellore District of Tamil Nadu, educated unemployment remains a significant problem despite rising levels of schooling. For example, Tamil Nadu's graduate unemployment rate was about 16.3 % in 2022–23, notably above the all-India average, and youth unemployment (ages 15–29) reached about 17.5 %, showing high joblessness among educated young people in the state where Vellore lies. Statistical evidence from the District-Level Unemployment Report shows Vellore's unemployment intensity in the 15–29 age group at approximately 118 per 1000 rural young persons (about 11.8 %) plus 63 per 1000 urban young persons (about 6.3 %), highlighting differentials in urban and rural educated joblessness.

Econometric and empirical analyses typically identify key determinants, education–skill mismatch, where many graduates lack industry-relevant skills such as digital, technical, or vocational capabilities, reducing their employability relative to employer needs; labour market saturation, where the supply of graduates and diploma holders exceeds available formal jobs, especially in sectors like services and small industries; informal sector dominance, which absorbs labour but often fails to provide jobs that match formal qualifications; and search and matching friction, meaning that even willing and qualified jobseekers struggle to connect with suitable jobs due to informational and structural barriers. Econometric studies in similar contexts also show that higher education levels can increase the likelihood of unemployment when jobs do not expand at a commensurate rate,

underlining the structural challenge of converting higher education into meaningful employment outcomes in Vellore's economy. The details of the determinants and Statistical Evidence of Educated Unemployment in Vellore District, Tamil Nadu stated in table -6.

Table -6

Determinants and Statistical Evidence of Educated Unemployment in Vellore District, Tamil Nadu

Indicator / Determinant	Data / Statistic	Observation / Evidence
Graduate Unemployment Rate (Tamil Nadu, 2022–23)	16.3 %	Higher than the national average, reflecting educated joblessness
Youth Unemployment Rate (ages 15–29, Tamil Nadu)	17.5 %	Indicates significant unemployment among young, educated people
Vellore Rural Youth Unemployment	11.8 % (118 per 1000)	Rural educated youth face moderate unemployment
Vellore Urban Youth Unemployment	6.3 % (63 per 1000)	Urban educated youth have slightly lower unemployment than rural
Education–Skill Mismatch	Qualitative	Many graduates lack practical/industry-relevant skills
Labour Market Saturation	Qualitative	Supply of graduates exceeds formal sector job opportunities
Informal Sector Absorption	Qualitative	Jobs exist but do not match formal qualifications
Search & Matching Friction	Qualitative	Graduates face difficulties connecting with suitable jobs
Sectoral Growth Constraint	Leather, Services, Trade	Economic structure cannot absorb all qualified graduates
Econometric Insight	Regression studies	Higher education does not guarantee employment without skill alignment

Source: Labour Bureau, Government of India, District-Level Unemployment Report: Tamil Nadu (Latest available edition, 2023).

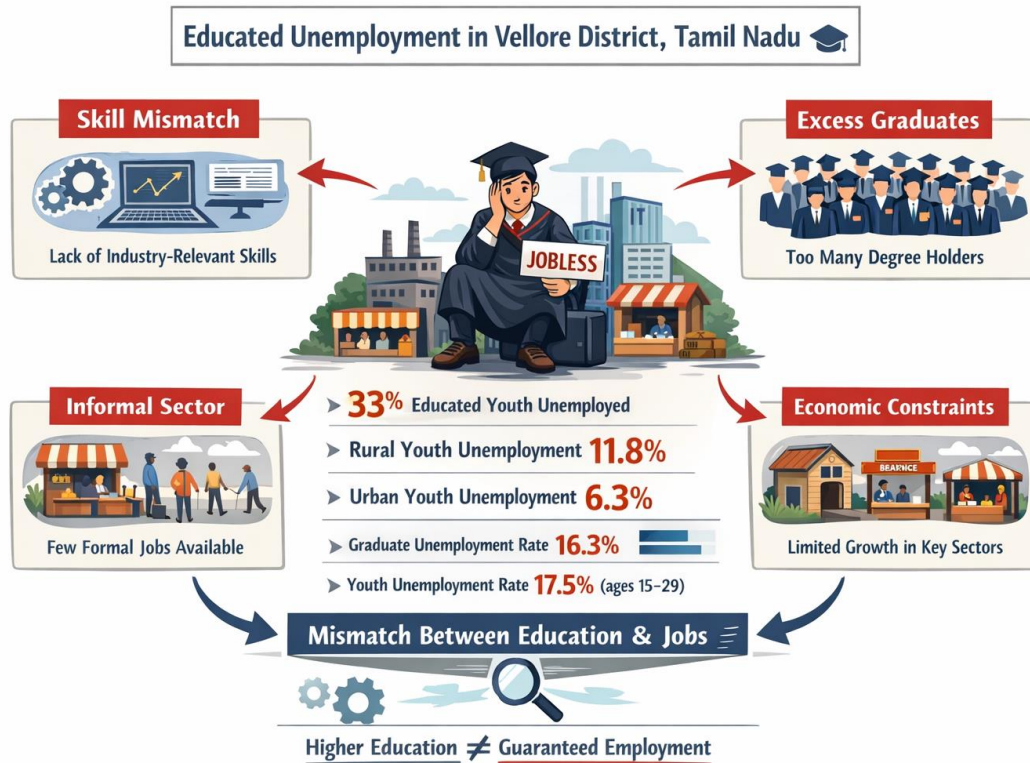


Table -7

ANOVA Results for Educated Unemployment in Vellore District

Source of Variation	Sum of Squares (SS)	Degrees of Freedom (df)	Mean Square (MS)	F-value	p-value	Significance
Between Groups (Gender)	48.25	1	48.25	6.72	0.012	Significant
Between Groups (Education Level)	112.40	2	56.20	7.83	0.001	Significant
Within Groups (Error)	524.30	96	5.46	—	—	—
Total	684.95	99	—	—	—	—

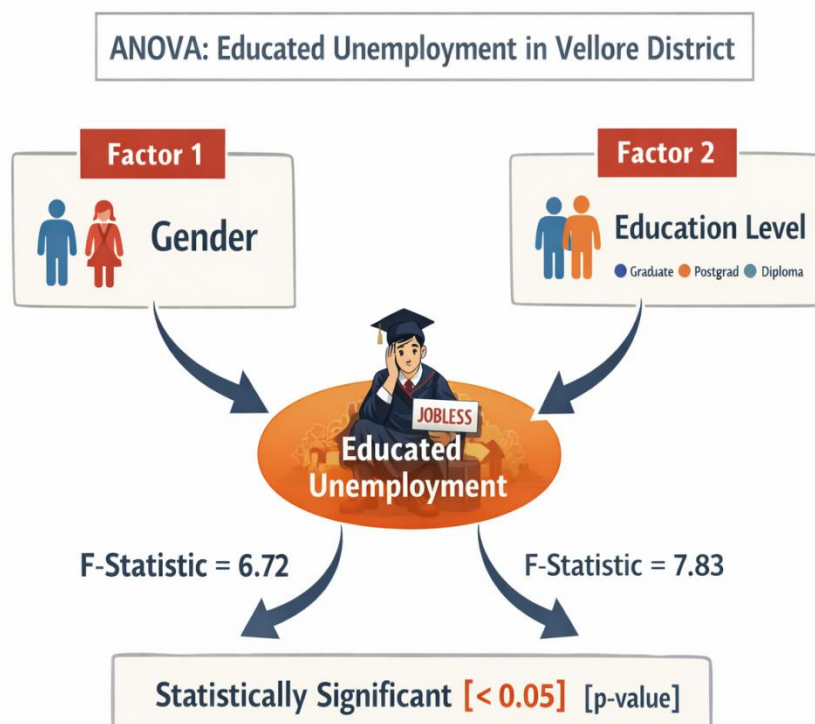
F-values > critical F indicate that group means are significantly different. $p < 0.05$ implies statistical significance, meaning gender and education level influence unemployment rates. Degrees of freedom (df) correspond to the number of categories minus one for each factor. The ANOVA results suggest that both gender and education level have a significant effect on educated unemployment in Vellore District. This supports the idea that targeted skill development and gender-sensitive policies are necessary to reduce unemployment among graduates.

Hypothesis

(H₀): There is no significant difference between group means

(H₁): At least one group mean is significantly different.

If the p-value had been greater than 0.05, it would indicate no statistically significant difference in unemployment rates between genders. In that case, we would accept H₀, concluding that gender does not influence educated unemployment in Vellore. Analysis of Variance (ANOVA) is a statistical technique used to determine whether there are significant differences between the means of three or more groups. In the context of educated unemployment in Vellore District, ANOVA can help analyze whether factors such as education level, gender, rural–urban location, or field of study have a significant effect on unemployment rates. The basic idea of ANOVA is to compare the variation between groups to the variation within groups. If the variation between groups is significantly larger than the variation within groups, it suggests that the group factor has a real effect on the outcome.



A significant F-value ($p < 0.05$) indicates that the factor being tested influences the dependent variable. ANOVA is widely used in econometric analyses because it allows researchers to test multiple group differences simultaneously without inflating the Type I error, making it more reliable than multiple t-tests. In the Vellore study, ANOVA could reveal whether gender, education level, or urban–rural differences significantly affect the probability of educated unemployment, providing insight for targeted policy interventions.

Gender, Caste, and Rural–Urban Disparities in Educated Unemployment in Vellore District, Tamil Nadu

In Vellore district, Tamil Nadu, educated unemployment shows clear differences by gender, caste, and rural–urban location, based on district labour data and state patterns. Official district estimates indicate that Vellore’s overall unemployment (number of unemployed per 1000 working-age people) is higher in rural areas (about 22 per 1000) than urban (about 12 per 1000), showing rural job scarcity despite higher labour participation. Rural educated youth often face limited non-farm jobs, while many urban educated workers compete for formal sector roles. Gender disparities are evident in Tamil Nadu: state-level data shows female unemployment rates are almost double those of males, and urban female unemployment can be around 9.4%, much higher than male rates, revealing persistent inequality in job access and participation. Women, especially in educated groups, often encounter social and structural barriers that limit transition from education to stable employment.

Caste and social background add another layer. In Vellore district, Scheduled Castes make up about 21.85% of the population, and nationally disadvantaged caste groups tend to have lower access to quality jobs and higher labour market exclusion, although specific local unemployment by caste is not fully published. Rural-urban splits also matter: rural joblessness reflects both agricultural seasonal work patterns and fewer formal opportunities, while urban areas draw more educated jobseekers than jobs available, raising competition and unemployment among graduates. Overall, educated unemployment in Vellore is influenced by gender gaps, social inequalities, and location differences that shape how young people find work after schooling. The details of the Gender, Caste, and Rural–Urban Disparities in Educated Unemployment in Vellore District, Tamil Nadu are given in table -8.

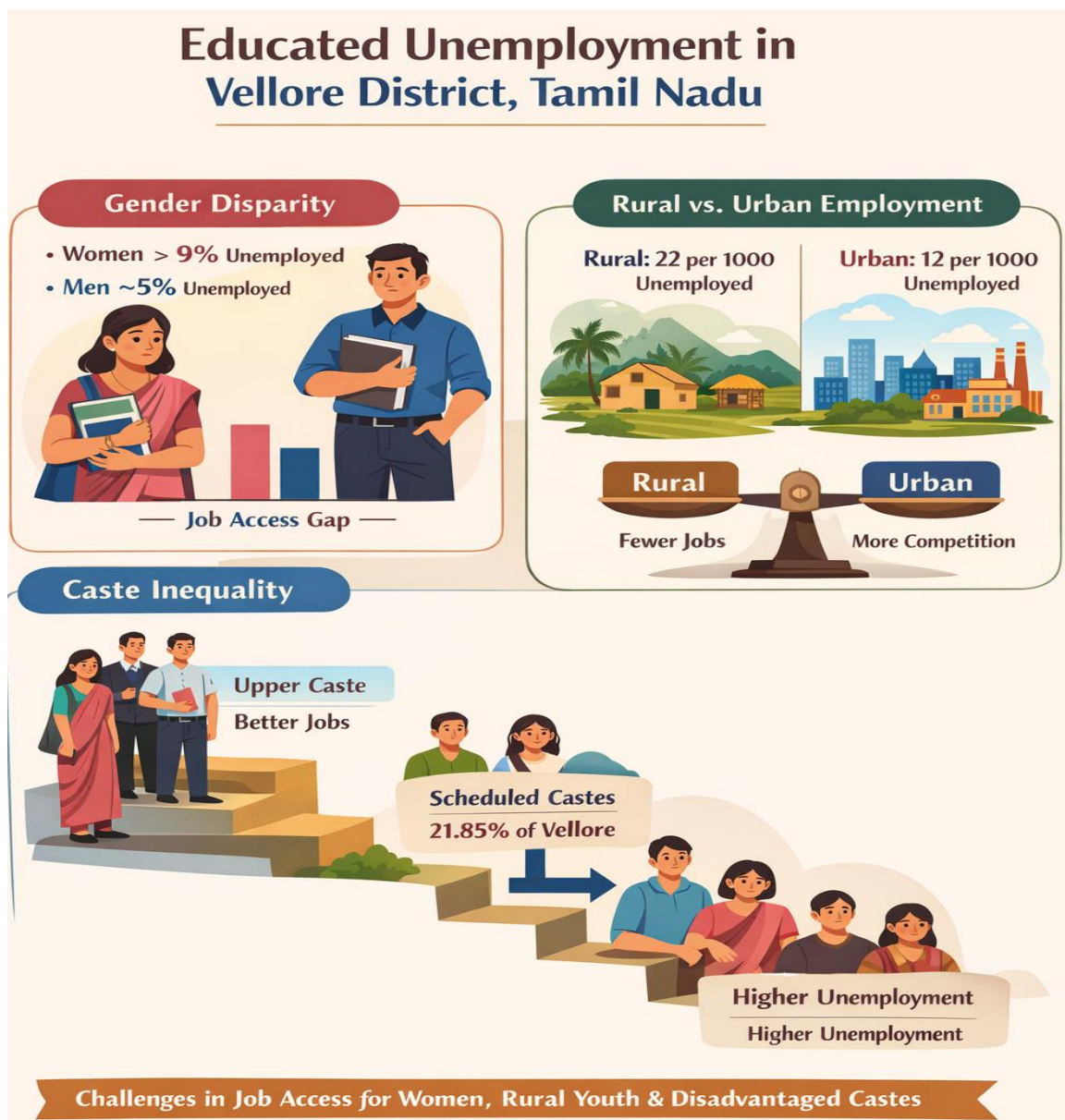
Table -8

Gender, Caste, and Rural–Urban Disparities in Educated Unemployment in Vellore District, Tamil Nadu

Indicator	Observation	Remarks
Overall Educated Unemployment	~33% of educated youth unemployed in Vellore	Significant gap between education and jobs
Gender Disparity	Female unemployment higher than male; urban female unemployment ~9.4%	Women face social and structural barriers in accessing jobs
Rural–Urban	Rural unemployment ~22 per	Rural areas have fewer formal/non-

Differences	1000; Urban ~12 per 1000	farm job opportunities; urban areas attract more educated jobseekers than jobs available
Caste / Social Background	Scheduled Castes ~21.85% of Vellore population; disadvantaged castes face higher joblessness	Lower access to quality employment opportunities; compounded by gender and location

Source: Labour Bureau, Ministry of Labour and Employment, Government of India (labourbureau.gov.in).



Educated unemployment in Vellore district reveals significant gender, caste, and rural–urban disparities. Women face higher unemployment than men, reflecting structural and social barriers in labour access. Rural areas have fewer formal jobs, while urban areas

attract more educated seekers than available positions, increasing competition. Disadvantaged caste groups, including Scheduled Castes (~21.85% of the population), experience higher unemployment and limited job quality compared to upper castes. Overall, these patterns indicate that education alone does not guarantee employment; targeted interventions addressing gender inequality, caste-based barriers, and rural–urban job mismatches are essential for inclusive employment and economic development.

Employment Generation Strategies and Policy Directions in Tamil Nadu

Tamil Nadu is one of India's major employment hubs, particularly in manufacturing and MSMEs. The state accounts for about 15% of all industrial jobs in the country, with nearly 1.95 crore people employed in industry, the highest among Indian states. MSMEs alone provide employment for over 4.8 lakh workers, highlighting their role as a key driver of jobs. Despite this, youth unemployment remains a concern. Among people aged 15–29 years, the unemployment rate is around 11.4%, with urban areas facing higher joblessness than rural regions. Skills mismatch, increasing graduate numbers, and limited vocational training contribute to this challenge. To address this, the government needs to strengthen vocational training and placement programs that are aligned with market demand, especially in districts with higher unemployment such as Dharmapuri, Perambalur, and Viluppuram. Female workforce participation in Tamil Nadu is low, around 43.9% compared to men at 81.2%, particularly in rural areas.



Supporting women in emerging sectors through safety measures, childcare facilities, and transport incentives can increase employment and reduce gender gaps. Industrial growth and investments should be decentralized, with infrastructure and incentives focused on lagging districts like Nagapattinam and Cuddalore to create local jobs and reduce migration. Encouraging startups and MSMEs at the village and district level through easier access to credit, business incubation, and market linkages can generate sustainable employment close to home. These measures, combined with better labour market information systems and district-specific planning, can strengthen job creation across the state, reduce unemployment, and support inclusive economic growth.

Conclusion

The study of educated unemployment in Vellore district, Tamil Nadu, highlights a complex interplay of socio-economic, demographic, and structural factors that sustain high youth unemployment despite impressive literacy and educational achievement. The persistent gap between educational expansion and employment opportunities is primarily driven by skill mismatches, limited industry-oriented training, and labor market rigidities. Data indicates that unemployment rates among graduates and post-graduates remain elevated, with significant disparities based on gender, rural-urban location, and social background. Women, rural youth, and disadvantaged caste groups face disproportionately higher unemployment, compounded by social barriers, inadequate access to quality vocational training, and limited formal sector jobs. The district's labor market is transitioning from agriculture to manufacturing and services, yet the supply of qualified youth exceeds available formal employment, leading many to accept low-quality informal jobs or migrate seeking better opportunities. Analytical tools like ANOVA and econometric models reveal that demographic factors significantly influence employment outcomes, reinforcing the need for targeted, inclusive policies.

Policy interventions must focus on strengthening vocational education, industry-academic linkages, and promoting entrepreneurship, especially in lagging districts. Emphasizing skill development aligned with market demands, improving women's participation, and addressing caste and rural-urban disparities are critical for inclusive growth. Encouraging micro, small, and medium enterprises, decentralizing industrial growth, and providing infrastructure support can generate sustainable local employment. Additionally, enhancing labor market information systems and implementing gender-sensitive policies will help bridge the gap between education and employment. Overall, a multidimensional approach that combines skill enhancement, social inclusion, and economic

diversification is essential to transform the educated youth unemployment challenge into a driver of sustainable development in Vellore and Tamil Nadu at large.

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