Does Education Reduce Unemployment Risk Equally for Men and Women? Evidence from Kerala Using NSSO 68th Round Data

Submitted by:

Sithara Sinin

(22227707290)

Department of Economics

Delhi School of Economics

University of Delhi

Abstract

This study examines whether education reduces unemployment risk equally for men and women in Kerala, using unit-level data from the NSSO 68th Round (2011–12). While higher education significantly reduces the likelihood of unemployment, the effect is statistically similar for both genders. However, women continue to experience substantially higher overall unemployment rates than men. This suggests that the roots of gendered unemployment lie less in educational disparity and more in persistent structural and sociocultural barriers to women's employment. These findings implies the need for targeted institutional and labor market reforms beyond educational access.

Introduction

Kerala is widely regarded as an outlier in India due to its high literacy rate and progressive social indicators with one of the highest literacy rates 94% according to the Census of India (2011) in India and has been lauded globally for its progressive health, education, and social indicators (Drèze & Sen, 2013). However, this success has not translated into proportional employment opportunities for women, particularly educated women.While education is traditionally understood as a shield against unemployment, Kerala challenges this expectation. Despite near-universal literacy and widespread access to higher education for women, the state's female labor force participation remains remarkably low reported at just 24.5% as per the NSSO's 68th Employment and Unemployment Survey (2011-12). This striking mismatch between education and employment makes us question the assumption that human capital accumulation alone ensures economic inclusion. The data suggests that educated women, even with qualifications comparable to their male counterparts, face systemic and deeply rooted barriers in accessing formal employment. Klasen and Pieters (2015) highlight that occupational segregation and limited formal sector job growth continue to hinder women's entry into the labor market, while others point to persistent gender norms and societal expectations that prioritize women's domestic roles over professional aspirations (Kodoth & Eapen, 2005).These gendered constraints ranging from discriminatory hiring practices to inadequate childcare infrastructure often prevent women from converting educational qualifications into meaningful employment, thereby undermining the very essence of human capital investment (World Bank, 2022).

The objective of this study is to empirically investigate the relationship between educational attainment, gender, and unemployment in Kerala, using detailed individual level data from the NSSO's 68th round survey (2011-12). This research focuses not only on whether higher

education reduces unemployment but also whether the economic returns to education differ substantially across gender lines, and how this relationship is influenced by the rural-urban divide.

One of the most significant motivations for this research lies in its potential to inform policy making. Addressing unemployment, particularly among educated women, is not merely a question of creating more jobs but of identifying and eliminating structural barriers that constrain equal access to existing opportunities. Understanding the intersection of education, gender, and geography is essential for crafting targeted employment policies and workplace reforms that close Kerala's persistent gender gap in labor market participation. The findings from this research could guide policies to address not only educational mismatch and occupational segregation but also to advance supportive institutional reforms such as the expansion of childcare services, the enforcement of anti-discrimination hiring policies, and improved access to secure, formal sector jobs.This evidence can help policymakers better design and implement interventions that convert Kerala's investments in education, especially for women, into tangible and sustainable economic empowerment.

Literature Review

Title	Authors	Year Published	Journal Name	Objective	Sample Data	Data Time Period	Data Sources	Variables	Methodology	Findings	Furthor Research Scope	Additional Info.
Level of Education and Female Employent : A Kerala Experience	Dr T Shameer das	2024	International Journal for Multidisciplinary Research	primary objective of the study is to analyze the relationship between the level of education and female employment in Kerala, focusing on issues such as educated unemployment and underemployment among women. The study aims to highlight the challenges faced by educated women in securing employment and the socio-economic factors contributing to these challenges	Educated women in Kerala, although specific sample size and demographic details are not provided in the contexts. The focus is on women who have completed higher education and are seeking employment .	trends in the early 2020s	NSSO, PLFS, CMIE,CDS Employment and Unemployment Survey, 2003	Level of education, Employment status,Socio-economic factors	Mlxed methods approad combining quantitative data from surveys , and qualitative insghts from interviews	findings indicate that educated women in Kerala face significant challenges, including: - High rates of educated unemployment and underemployment. - Societal factors such as family responsibilities and gender inequality that hinder their employment opportunities. - A need for better policy formation and program implementation to support women's employment .	The study suggests a need for further research into: - The impact of educational policies on female employment. - Longitudinal studies to track changes in employment trends among women over time. - Exploration of specific sectors where educated women are	The paper emphasizes the importance of addressing the socio-economic barriers that contribute to the marginalization of women in the labor force. It highlights that the prosperity of a country relies on the equitable participation of both genders in the workforce .
Situating Women's Education and Employment In Kerala. In The Context of High on Literacy And Unemployment	Jesna T	2021	IJSEAS	primary objective of the study is to identify the factors contributing to unemployment among educated women in Kerala, despite the state's high literacy rates and economic growth .	Focuses on young females in Kerala			- Unemployment rates among young females and males. - Levels of education attained by women. - Economic growth indicators		study reveals a paradox where Kerala, known for its high literacy rates and educated women, experiences low female work participation and high unemployment rates among educated women . - Unemployment is noted to hinder economic development and contribute to social unrest, particularly affecting educated individuals who cannot apply their skills effectively .	- The specific barriers preventing educated women from entering the workforce. - Comparative studies with other states in India to understand regional differences in women's employment. - Longitudinal studies to track changes over time in	The contexts highlight that the educational advancements in Kerala have historical roots, with significant contributions from various social groups and movements aimed at promoting education for all, including women . - The report emphasizes
Female Labour Force Participation in Kerala: Facts, Problems , and prospects	Prof. N. Manimekalai	2021	IOSR Journal of Humanities and Social Science	primary objective of the study is to analyze female work participation in Kerala using occupational data from the National Family Health Survey (NFHS) and the Census of India. It aims to compare the data from NFHS with Census data and other similar sources to understand trends and patterns in female labor force participation	Secondary data derived from the NFHS and Census of India, focusing on female labor force participation rates and occupational data .	1991-2011	Primary data sources - National Family Health Survey (NFHS) - Census of India - National Sample Survey Organization (NSSO)	- Female work participation rates - Types of employment (self-employed, unpaid helpers, etc.) - Economic conditions and factors influencing labor participation (migration, gender discrimination, etc.) .	- The study employs a comparative analysis methodology, utilizing secondary data to assess trends in female labor force participation. It analyzes the data from NFHS and Census to identify patterns and draw conclusions about the factors affecting female employment in Kerala	- Female work participation in Kerala has been declining from 1991 to 2011. - Factors contributing to this decline include migration, gender discrimination, the influence of new economic policies, and the backwardness of traditional sectors . - Despite Kerala's achievements in development, the female labor force participation rate is lower than expected .	- The impact of educational attainment on female labor force participation. - Longitudinal studies to track changes in female employment trends beyond 2011. - In-depth qualitative studies to understand the socio-cultural barriers affecting women's employment in Kerala .	paper emphasizes that women in Kerala, despite being more educated and having better health indicators, are still engaged in low-productivity and insecure jobs, often in the informal sector . This highlights a paradox where development does not necessarily translate into improved labor market outcomes for women.
Gender, Education and Work : Determinants of Womens Employment in Kerala	Alice Sebastian	2008	IJEMH	primary objective is to identify the factors that cause unemployment among the educated women in the State. The study tries to investigate how unemployment is related to educational achievements of women, conditioning on individual, household and demographic characteristics.	Focus on working-age women and gender-segregated employment data for Kerala.		CDS Employment/unemployment survey 2003 data			finds that 74 percent of educated women are unemployed in the sample. Women are found to be more educated than men across all educational categories expect diploma and secondary education. But this is not translated into gainful employment opportunities for them		
Looking beyond Gender Parity: Gender Inequities of Some Dimensions of Well-Being in Kerala	Mridul Eapan, Praveena Kodoth	2005	EPW	explores gender disparities in employment within Kerala's labor market.	gender-segregated employment data for Kerala.							

Labour Market 'Inclusion' in an Era of Economic Growth: A Case of Women Workers In Kerala, India	Shalina Susan Mathew	2014	The Indian Journal of Labour Economics	primary objective of the paper is to examine the labour market dynamics of women workers in Kerala during a period of significant economic growth. It aims to evaluate labour market trends, patterns, and the nature of employment generation for women, particularly focusing on the adverse nature of their inclusion in the labour market activities	National Sample Survey Organisation (NSSO), specifically from the employment-unemployment survey (EUS) .	1993-94 to 2009-10, with a particular focus on the data from the year 2004-05 for detailed assessment		Employment rates - Job quality (employment status) - Skill-based occupational status - Access to social security benefits and job contracts	- The study employs the 'usual status' approach to classify the activity status of individuals, recording their economic activity over a reference period of one year . - It also utilizes the National Classification of Occupations (NCO) to analyze the types of occupations that accommodate employed females, reclassifying earlier data to align with the NCO-2004 classification	findings indicate that the inclusion of women in the labour market has been largely adverse, reflecting a trend of 'contingent labour' absorption into the workforce. The study highlights the quality of employment and the nature of job opportunities available to women in Kerala during the economic growth period .	suggests that further research could explore the long-term impacts of economic growth on women's employment quality and the evolving dynamics of the labour market in Kerala, particularly in relation to informal employment and social security access.	emphasizes the importance of understanding the labour market dynamics in the urban sector of Kerala, as it is significantly influenced by market forces and economic changes

Theoretical model

The examination of unemployment as an economic and social phenomenon has long attracted the attention of policymakers and researchers. In understanding the unemployment dynamics in Kerala, especially in relation to education, gender, and geographic sector (urban versus rural), it is essential to anchor the study within a coherent theoretical model. The model should not only clarify the key concepts but also outline the presumed relationships among them, offering a rigorous framework for empirical validation.

The key concepts and definitions are followed as: Unemployment, in this paper, is defined as the state of being actively seeking work but unable to find paid employment. The NSSO survey captures this status under "Usual Principal Activity Status" code 81, which represents individuals reporting unemployment during the reference period. Education is often treated as a form of human capital that enhances an individual's productivity and employability (Becker, 1993). Here, educational attainment is categorized into discrete levels, such as Illiterate, Up to Middle, Secondary to Higher Secondary, and Graduate & Above. These categories serve as proxies for skill levels, labor market readiness, and social capital. Gender, distinguished as male and female in this study, plays a critical role in employment dynamics due to socio-cultural and economic factors that influence labor market participation. Gender bias, social norms, and household responsibilities are often known to disproportionately affect women's employment opportunities (World Bank, 2022). Finally, sector refers to the type of locality in which an individual resides—urban or rural. This variable is important as the labor market structure, demand, and opportunities differ substantially between urban and rural areas, with rural regions often depending more on agriculture and informal employment.

The model aims to explore the probability of unemployment as a function of educational attainment, gender, and sector. A logistic regression framework is appropriate here, as the

dependent variable unemployment status is binary (1 for unemployed, 0 for employed). The theoretical model can be expressed as:

P (Unemployed = 1) = f (Education Level ,Gender , Sector, Interactions)

This model assumes that education, gender, and sector are not isolated variables but interact in complex ways to influence unemployment likelihood. For instance, a woman with a graduate degree in rural Kerala may face different employment prospects compared to her urban counterpart or a male with the same qualifications. While this study initially hypothesized that education might reduce unemployment risk differently for men and women, the regression results showed no statistically significant interaction effect. Therefore, while education is effective in lowering unemployment risk overall, it does so similarly for both genders, suggesting that other structural barriers may be responsible for the persistent gender gap.

The conceptual backbone of this model is grounded in both classical and contemporary labor economics theories. Human capital theory suggests that education equips individuals with skills that increase their productivity, making them more attractive to employers and thus reducing the probability of unemployment (Becker, 1993). However, the situation in Kerala challenges this straightforward relationship, as studies have shown that even highly educated women face persistently higher unemployment rates than men, indicating that labor market dynamics are shaped by more than just educational attainment (Kannan & Raveendran, 2009). Gender segmentation theory explains how the labor market is structured along gender lines, often segregating women into lower-paying, less secure sectors or excluding them altogether, irrespective of their qualifications (Standing, 1999). This is particularly relevant to Kerala's labor market, where women are underrepresented in formal employment and overrepresented in informal, unpaid, or family-based work, highlighting the systemic barriers to their full economic participation.The spatial divide between urban and rural labor markets is another layer of complexity, as urban centers typically offer a higher proportion of white-collar or formal jobs, whereas rural areas are often characterized by agriculture and informal work. Yet, this does not necessarily translate to lower unemployment in urban areas for women, as cultural norms and gender expectations still limit participation even when jobs are available (Klasen & Pieters, 2015). Also the labor market sometimes fails to create jobs that match the qualifications of the population, leading to underemployment or unemployment even among the highly educated (Allen & Van der Velden, 2001). This is especially applicable to Kerala's case, where highly educated individuals particularly women are not always absorbed into suitable employment, not due to a lack of education but due to demand-side constraints and structural rigidity.

Data and Methodology

This research utilizes microdata derived from the National Sample Survey Office (NSSO) of India, specifically focusing on the state of Kerala. The NSSO is a reputed government body

under the Ministry of Statistics and Programme Implementation (MoSPI) that regularly conducts large scale surveys covering various socio-economic dimensions. The dataset used in this study is sourced from two key household-level files: Block 4: Demographic Particulars of Household Members and Block 5.1: Usual Principal Activity Particulars of Household Members. These two blocks were merged using the household identification number (HHID) and personal serial number (Person_Serial_No) ensuring each observation represents a unique individual. This merged dataset allows the study to integrate both personal demographic details and economic activity status which is a necessary structure for analyzing unemployment patterns. The NSSO employs a stratified multi-stage sampling design aimed at representing the diverse socio-economic profile of India's population. For Kerala, the sample captures a wide cross-section of both rural and urban households, ensuring broad representation of the state's demographic and employment landscape. The dataset covers thousands of observations, making it statistically powerful for a state-level study.The empirical analysis seeks to examine the relationship between educational attainment, gender, and unemployment in Kerala, with a focus on whether the protective effect of education operates similarly for men and women.

The dependent variable is binary: an individual is coded as unemployed (1) if their "Usual Principal Activity Status" is listed as 81 - unemployed seeking or available for work and as not unemployed (0) otherwise. This definition aligns with the NSSO's usual principal status framework, where the activity status reflects the individual's primary engagement during the reference year. Given the binary nature of the outcome variable, a logistic regression model (logit) is employed. This model is suitable for estimating the probability of an event (in this case, unemployment) based on a set of explanatory variables.

The key independent variables includes educational attainment ,gender, sector and age group. Educational attainment is captured through the variable Edu_Group, which categorizes individuals into four levels which are Illiterate, Up to Middle, Secondary to Higher Secondary, and Graduate & Above. These categories provide a clean ordinal progression aligned with NSSO coding and are reflective of labor market-relevant educational thresholds. The variable Gender is a binary categorical factor coded as Male (reference category) and Female. The Sector variable distinguishes between Rural (reference category) and Urban residences. The Age_Group variable, constructed from the individual's age, classifies respondents into three life-cycle relevant categories: Under 25, 25–34, and 35–59. This grouping balances granularity with statistical efficiency and is consistent with labor market segmentation by age.

A core component of the analysis is the interaction term between education level and gender. This term tests whether the effect of education on unemployment probability differs significantly for men and women. The model specification is as follows

$$\text{logit}(P(\text{Unemployed}=1)) = \beta 0 + \beta 1\text{Edu\_Group} + \beta 2\text{Gender} + \beta 3\text{Sector} + \beta 4\text{Age\_Group} + \\ +\beta 5(\text{Edu\_Group}\times\text{Gender})+\epsilon$$

The estimation is performed using R's glm() function with the family = binomial argument, which estimates logistic regression models. Dummy variables for the categorical predictors are internally generated by R using treatment contrasts. In this setup, "Illiterate" serves as the base category for education, "Male" for gender, "Rural" for sector, and "<25" for age group. Coefficients are interpreted relative to these reference groups. Model robustness is ensured through additional gender-split regressions, where separate models are estimated for male and female subgroups to examine whether the marginal effects of education differ by gender when estimated independently. This step provides clarity on whether observed differences stem from interaction effects or baseline differences across subgroups. To aid interpretability, odds ratios and marginal effects are calculated. Marginal effects, in particular, help quantify how a unit change in a predictor (such as switching from rural to urban, or from male to female) changes the probability of unemployment. Diagnostic checks, including variance inflation factors (VIF), are used to assess multicollinearity. A series of descriptive and inferential visualizations such as bar plots, boxplots, and faceted charts are integrated into the analysis to contextualize statistical results with distributional insights. This methodological approach provides a rigorous framework to evaluate whether the economic returns to education are equitable across genders in Kerala, and whether sector and age further mediate this relationship. It also enables testing the hypothesis that gender-based disparity in unemployment persists even when educational attainment is held constant, thereby supporting a structural rather than purely human-capital-driven explanation for female unemployment.

Results

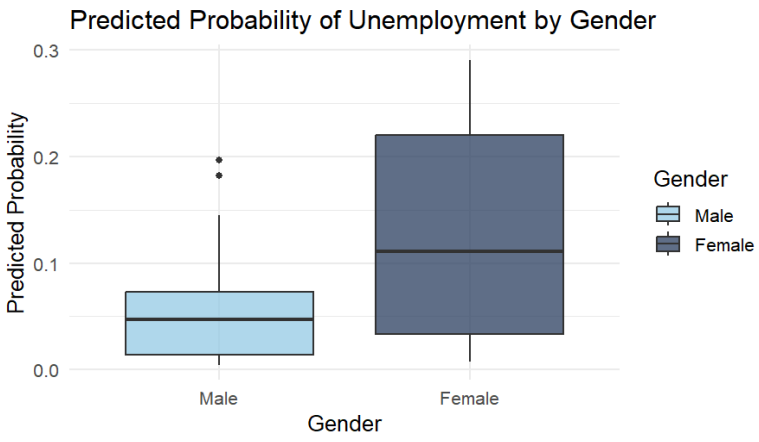
This section presents the empirical findings derived from the logistic regression analysis and visual explorations performed on the NSSO data for Kerala. The study focuses on understanding how educational attainment, gender, and rural-urban sector contribute to an individual's probability of being unemployed. The results, both numerical and graphical, shed light on significant trends and relationships that define Kerala's complex labor market structure.The logistic regression analysis provides important insights into the complex relationship between education, gender, sector, and unemployment probability in Kerala. The model includes interaction terms to assess whether the effect of education on unemployment varies by gender, while controlling for age and sector. The following discussion focuses on interpreting the odds ratios, statistical significance, and what these results imply for the labor market dynamics in the state. Results from the full model suggest that educational attainment does significantly reduce the likelihood of being unemployed. Specifically, individuals with secondary to higher secondary education are about 68% less likely to be unemployed compared to those who are illiterate (Odds Ratio = 0.32, $p < 0.001$). Urban residence is also negatively associated with unemployment (OR = 0.69, $p = 0.006$), while those aged 35–59 face significantly lower odds of being unemployed compared to those under 25. The gender coefficient remains positive and statistically significant

(OR = 1.67, p = 0.005), indicating that women continue to face a structurally higher risk of unemployment, even after accounting for education, age, and sector. However, the interaction between education and gender is not statistically significant (OR = 1.04, p = 0.89), suggesting that while education helps both men and women equally in reducing unemployment, it does not eliminate the gender gap. This counterintuitive result echoes the paradox often discussed in Kerala's labor market literature: higher educational attainment does not always translate into improved employment outcomes, especially for certain groups such as women (Kannan & Raveendran, 2009). Despite comparable qualifications, women remain at a disadvantage, implying that barriers to employment lie beyond education likely rooted in social norms, occupational segregation, and a lack of gender-sensitive job creation.

Table 1: Logistic Regression Models for Full Sample, Male and Female Subgroups (Odds Ratios)

	Full Sample			**Males Only**			**Females Only**		
Predictors	*Odds Ratios*	*std. Error*	*p*	*Odds Ratios*	*std. Error*	*p*	*Odds Ratios*	*std. Error*	*p*
(Intercept)	0.22	0.04	**<0.001**	0.26	0.07	**<0.001**	0.35	0.06	**<0.001**
Edu Group [Secondary to Higher Sec]	0.32	0.08	**<0.001**	0.30	0.09	**<0.001**	0.34	0.06	**<0.001**
Gender [Female]	1.67	0.31	**0.005**						
Sector [Urban]	0.69	0.09	**0.006**	0.60	0.15	**0.045**	0.73	0.12	**0.048**
Age_Group25-34	1.10	0.16	0.512	0.93	0.27	0.788	1.18	0.20	0.348
Age_Group35-59	0.09	0.02	**<0.001**	0.09	0.04	**<0.001**	0.09	0.03	**<0.001**
Edu Group [Secondary to Higher Sec] × Gender [Female]	1.04	0.32	0.891						
Observations	2853			1153			1700		
R^2 Tjur	0.089			0.063			0.088		

Separate regressions for men and women provide additional insight. For both genders, education significantly reduces the likelihood of unemployment. The odds of unemployment for women with secondary and higher education are about 66% lower compared to illiterate women. A similar pattern is observed for men. However, the base probability of unemployment remains significantly higher for women, reaffirming that education alone is not a sufficient equalizer. Interestingly, urban women seem to benefit slightly more from the urban effect (OR = 0.73, p = 0.048) than urban men, suggesting that location may offer marginally improved opportunities for women though not enough to offset the overall gender disparity.The average marginal effect of being female is +4.05 percentage points ($p < 0.001$), showing a persistent gender-based disadvantage in unemployment risk. The effect of being in the 35–59 age group is -12.8 percentage points, reinforcing the labor market advantage of mid-career individuals. Educational marginal effects are strong and negative, as expected. Yet, the Tjur R^2 value of 0.096 indicates that the model explains only a modest portion of the variation in unemployment status. This is not uncommon in labor market models, where critical unobserved factors such as caste, social networks, work experience, family responsibilities, and employer discrimination often influence outcomes.

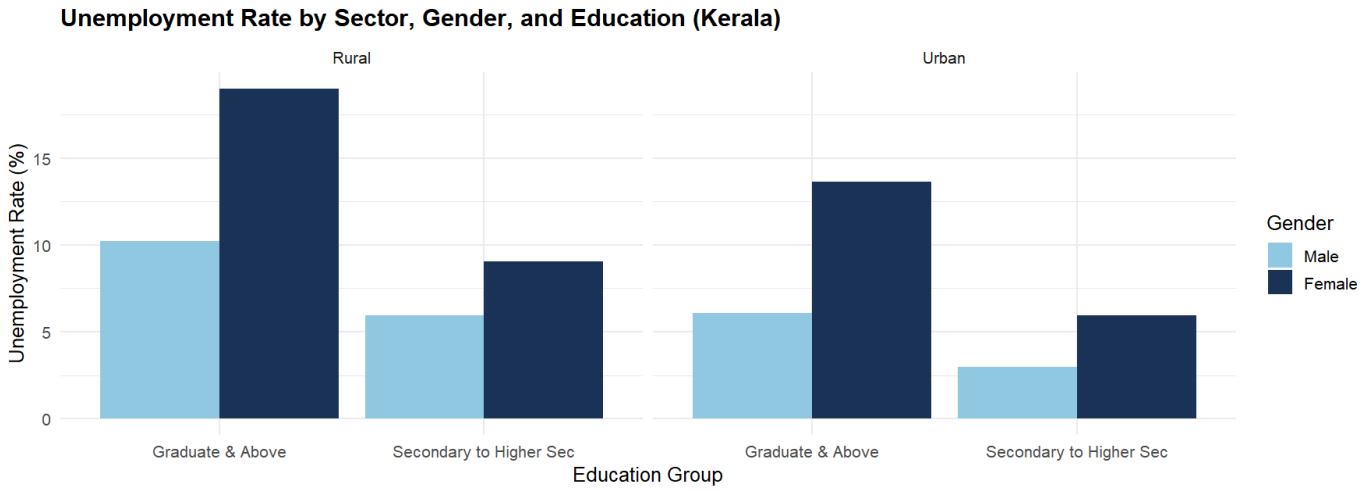


Several visualizations enhance the interpretation of regression results. The predicted probability boxplot (figure1) clearly shows that women consistently face higher predicted unemployment probabilities across the sample. The urban-rural faceted bar plot (figure2) highlights that unemployment rates are generally lower in urban areas but that gender gaps persist across all education levels, especially in rural Kerala.

The distribution of education levels by gender (figure 3) shows a notable pattern: women are disproportionately represented in higher education categories, yet their unemployment rates remain high. This mismatch signals a disconnect between educational investment and labor market absorption, a particularly troubling finding in a state that leads India in female literacy. The final marginal effects plot (figure 4) offers a visual summary of how each variable influences the probability of unemployment, confirming the statistical output: while education and age reduce unemployment risk, gender continues to exert a standalone, positive effect on unemployment probability.Overall, the regression model paints a complex and layered picture of Kerala's labor market. Gender emerges as the most consistent and significant determinant of unemployment, overshadowing the protective effect typically expected from education. While

higher education remains a crucial lever for improving employment prospects, its effect is not powerful enough to overcome the deep-rooted structural constraints faced by women in Kerala.

Figure 2



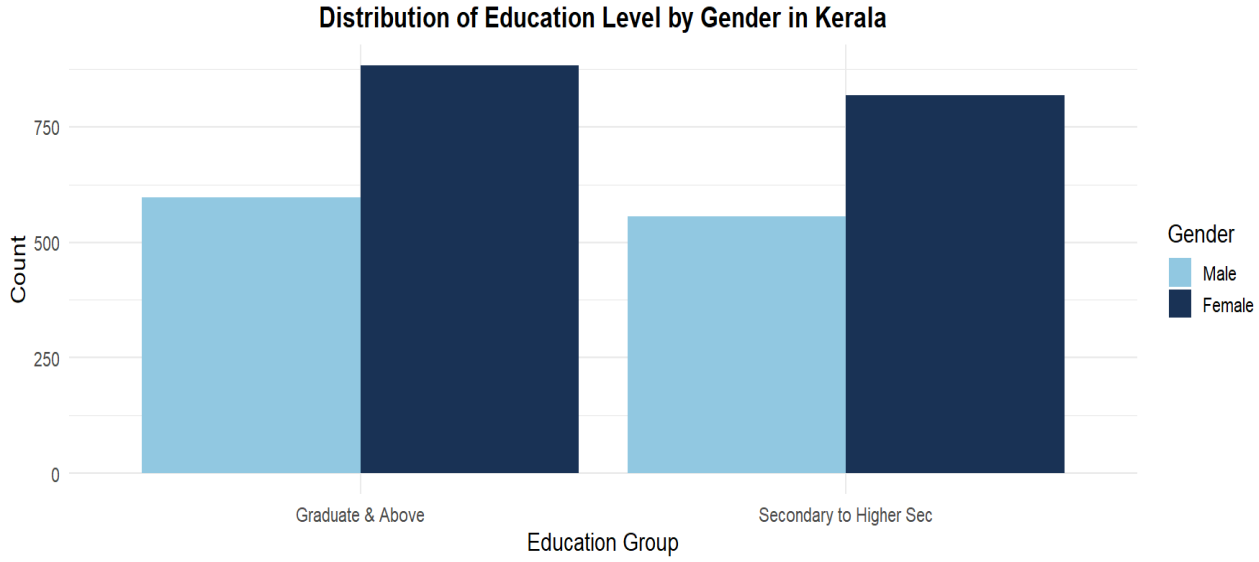


Figure 3

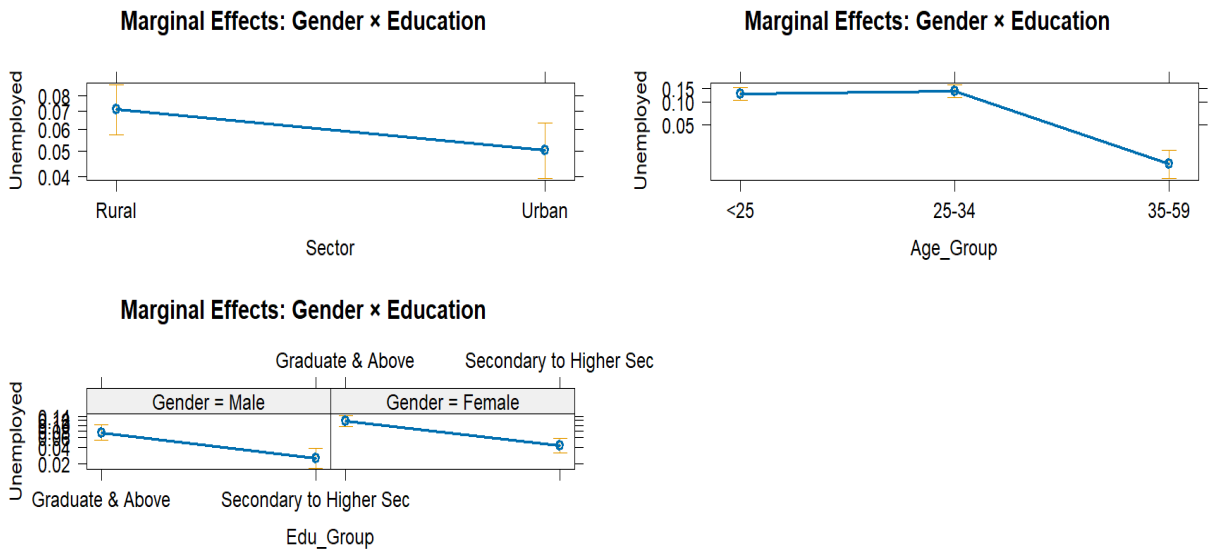


Figure 4

Visualizations and statistical outputs together underscore a critical policy dilemma: the state's substantial investments in female education have not translated into equivalent labor market outcomes. This suggests a need for interventions that go beyond education—such as workplace gender audits, formal sector job expansion, re-skilling programs, and childcare infrastructure—to truly close the employment gap. In conclusion, this study affirms the hypothesis that education reduces unemployment but does not do so equally across gender lines. Kerala's persistent gendered unemployment gap, despite its celebrated social indicators, serves as a compelling case for rethinking how economic inclusion can be achieved in a socially progressive yet structurally constrained labor market**.**

Validation with NSS Reports

To validate the findings from this micro-level regression analysis, we compare the key unemployment rates derived from the NSSO unit-level data with the published summary results in the official NSS 68th Round report (2011–12). According to the NSSO's Key Indicators document, the female unemployment rate in urban Kerala was reported at 19.3%, while the male unemployment rate was around 4.9%. These figures broadly align with our regression estimates, which found that women had significantly higher odds of unemployment compared to men, even after controlling for education, age, and sector. Additionally, the NSS report confirms that unemployment among those with graduate and postgraduate degrees was higher than among those with only secondary education, a trend also reflected in our model results. Minor discrepancies in exact percentages are expected due to differences in weightings, sampling design, and subsample focus (our study filters only ages 18–59, for example). Nevertheless, the overall patterns are consistent and support the validity of this study's findings.

Conclusions

The findings of this research highlight one of the most enduring contradictions in Kerala's labor market: the coexistence of widespread educational attainment especially among women with persistently high unemployment. Using unit-level data from the 68th round of the National Sample Survey (NSSO, 2011–12), this study employed a logistic regression framework to investigate whether education reduces unemployment risk equally for men and women in Kerala. The analysis confirms that education does significantly reduce the likelihood of being unemployed for both genders. However, it also shows that the effect of education on employment outcomes does not differ meaningfully between men and women. In other words, while education improves employment prospects, it does not close the gender gap.The regression results indicate that individuals with secondary or higher secondary education have significantly lower odds of being unemployed compared to illiterate individuals. However, interaction effects between education and gender were not statistically significant, suggesting that the protective effect of education applies similarly to both men and women. At the same time, the model reveals that women are still significantly more likely to be unemployed than men, even after controlling for education level, sector (rural/urban), and age. This points to persistent structural and social barriers that lie beyond educational qualifications.These findings challenge the simplistic assumptions of classical human capital theory (Becker, 1993), which posits that higher educational attainment directly translates into better employment outcomes. In Kerala's case, gender continues to shape labor market participation in ways that education alone cannot overcome. This supports the broader argument that Kerala's employment landscape is shaped not only by supply-side factors like education but also by demand-side structural constraints and deeply embedded gender norms.

The state-specific reasons for this problem in Kerala are linked to several interconnected factors. First, Kerala's economy has historically leaned on public-sector jobs and remittance income from Gulf migration rather than a diversified, industry-driven private sector (Zachariah & Rajan, 2012). This has created a limited number of high-quality, formal jobs, particularly for women, whose labor market participation is further constrained by entrenched social expectations around domestic responsibilities (Kodoth & Eapen, 2005). Second, there is evidence of aspirational mismatch in Kerala. Educated young people, particularly women, often aspire to secure white-collar or professional jobs that align with their education, but the economy is unable to generate sufficient numbers of such roles (Thomas, 2022). Many women choose to remain unemployed rather than accept low-status or informal jobs, reinforcing the appearance of high unemployment among the educated. And gendered cultural norms, including restrictions on mobility, safety concerns, and the lack of accessible and affordable childcare, continue to act as barriers to women's entry and retention in the labor market — even for highly qualified women (World Bank, 2022).

Given these Kerala-specific dynamics, the following **policy recommendations** emerge:

- Targeted Employment Programs for Educated Women: The state government should design schemes specifically for educated women, especially in non-traditional sectors like IT services, green technologies, healthcare management, and remote work platforms, where physical mobility is less of a barrier.

- Enhancing Skill Diversification Beyond Formal Education**:** Kerala's education system should integrate more market-responsive skill training, particularly in technical, entrepreneurial, and digital domains, to improve job readiness beyond formal degrees.

- Expanding the Scope of the Private Sector**:** Kerala's economy needs structural reforms to encourage private investment in industries beyond services and government employment including manufacturing, tourism, sustainable agriculture technology, and small-scale enterprises to create a broader range of jobs for its educated population.

- Women Friendly Workplace Infrastructure: Improved support systems, such as safe public transportation, community childcare centers, and flexible work regulations, are necessary to help women transition from education to stable employment.

- Bridging Aspirational Mismatches: Career counseling at both school and college levels could help align young graduates' expectations with the realities of Kerala's labor market, reducing the gap between education-driven aspirations and available employment opportunities.

While the study offers valuable insight into Kerala's gendered unemployment paradox, it is constrained by the cross-sectional nature of the NSSO data, which limits causal interpretation. Future research would benefit from longitudinal data that tracks individuals over time to better understand employment trajectories, especially for women.Also qualitative research including interviews and ethnographic studies would offer a richer understanding of the social and psychological barriers that discourage labor market participation among Kerala's educated women. Comparative studies involving other Indian states or similar global regions could also help determine whether Kerala's labor market patterns are unique or part of a broader socio-economic trend. In sum, this study reaffirms that education is a necessary but insufficient condition for labor market inclusion in Kerala particularly for women. The solution lies not in expanding education alone but in addressing the social, structural, and sectoral barriers that continue to suppress the economic potential of half the state's workforce.

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APPENDIX

Table A1: Male-Only Logistic Regression Output

	Unemployed		
Predictors	***Odds Ratios***	***CI***	***p***
(Intercept)	**0.26**	**0.15 – 0.42**	**<0.001**
Edu Group [Secondary to Higher Sec]	**0.30**	**0.17 – 0.52**	**<0.001**
Sector [Urban]	**0.60**	**0.35 – 0.98**	**0.045**
Age_Group25-34	**0.93**	**0.52 – 1.63**	**0.788**
Age_Group35-59	**0.09**	**0.04 – 0.21**	**<0.001**
Observations	**1153**		
R^2 Tjur	**0.063**		

Table A2: Female-Only Logistic Regression Output

	Unemployed		
Predictors	***Odds Ratios***	***CI***	***p***
(Intercept)	**0.35**	**0.25 – 0.48**	**<0.001**
Edu Group [Secondary to Higher Sec]	**0.34**	**0.24 – 0.48**	**<0.001**
Sector [Urban]	**0.73**	**0.53 – 1.00**	**0.048**
Age_Group25-34	**1.18**	**0.84 – 1.65**	**0.348**
Age_Group35-59	**0.09**	**0.04 – 0.17**	**<0.001**
Observations	**1700**		
R^2 Tjur	**0.088**		