

# A Comparative Study of Occupational Classification of Male Workers and Female Workers by Literacy, Educational Level and Worker Type

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**Abstract:** This comparative study aims to analyze the occupational classification of male workers and female workers by Literacy, Educational Level and Worker Type. The study uses data from the latest available rounds of the National Sample Survey to compare the occupational status of male and female workers with different educational levels in rural and urban areas of India. The research investigates the extent of the marginalization of women workers and how it varies by educational level and type of society. The study also examines the extent of gender-based occupational segregation and its relationship with educational level and type of society.

**Keywords — :** Female, Histograms, Illiteracy, Karl Pearson's coefficient of correlation, Literacy, Main worker, Marginal worker, Male, Rural, Regression, Urban

## I. INTRODUCTION

As gender-based marginalization and discrimination continue in many nations, including India, the need to promote gender equality in the workplace has drawn more attention. Maharashtra, one of India's most developed states, deals with comparable difficulties. This comparative study focuses on Mumbai, Maharashtra, to examine how male and female workers are classified in terms of their occupations based on literacy, worker type, and educational attainment. The study takes into account a person's literacy level as well as their level of illiteracy. Between primary employees, who work more than six months a year, and marginal workers, who work fewer than six months, there are differences in worker type. Based on whether they have completed education up to the secondary or graduate level, education level divides literate people into categories. These independent factors are essential because it is anticipated that they would affect Mumbai's gender-based occupational segregation and marginalization as well as how male and female workers are classified by occupation.

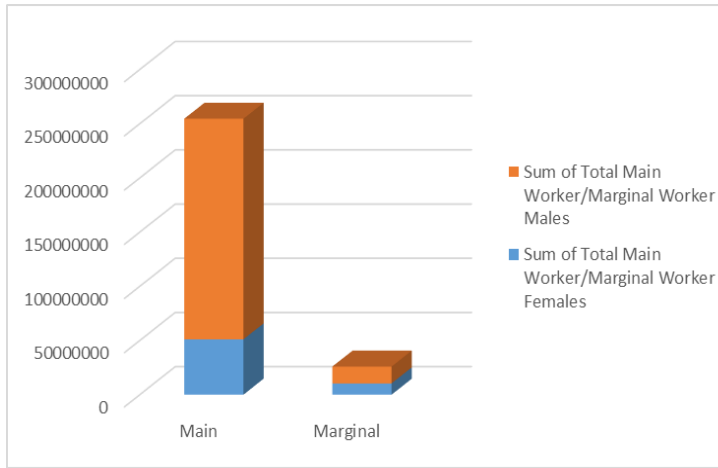
By examining the connection between these variables and the occupational status of male and female workers, the study intends to increase knowledge about the factors causing gender-based occupational segregation and marginalization in Mumbai. Data from the national survey was the primary source of information used to do this. Regression analysis, correlation analysis, and the use of bar graphs to display the findings round out the data analysis techniques used. This study has some limitations, despite the fact that it sheds insight on the variables influencing gender-based occupational classification in Mumbai. The

study's findings might not completely capture the intricacies unique to Mumbai alone because the data came from a national survey. Additionally, it is difficult to demonstrate causation because of the cross-sectional character of the data. Despite these drawbacks, the study contributes to a larger conversation on gender equality and women's empowerment and offers insightful information about gender differences in the workplace. The study's area of generalization relates to how male and female workers in Mumbai, Maharashtra, are categorized. The results may be applicable to other Indian cities with comparable urban environments, but because social, economic, and policy factors vary widely across regions and nations, it is important to interpret the results with caution. Overall, this study adds to our understanding of the difficulties associated with gender-based occupational segregation and emphasizes the significance of resolving gender inequities in the workplace to advance a more inclusive and equitable society.

## II. FACTORS AND STATISTICS

### A. By type of worker

Due to the prevalence of low-wage and precarious employment, marginal workers are an especially vulnerable category in the workforce. Additionally, marginalised workers are more likely to encounter prejudice and marginalisation at work. Main workers, on the other hand, are more likely to have secure, well-paying positions. Since women are more likely than males to work in marginal jobs,



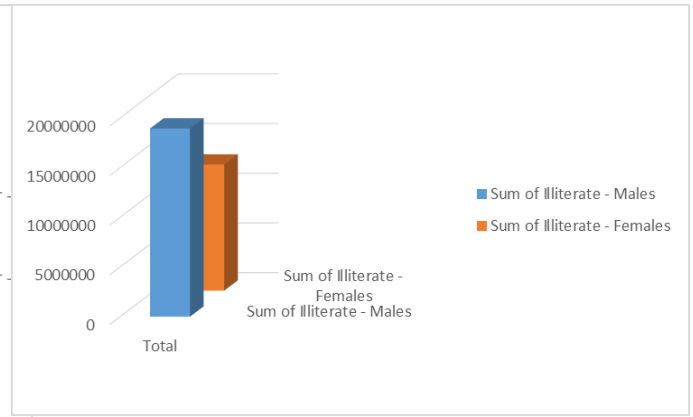
**Figure 1 – Bifocation of main and marginal workers by gender**

which is true in the case of this study as well, gender plays a significant impact in the occupational classification of main and marginal workers. This is because women's access to formal education, training, and career prospects is restricted by a number of social, cultural, and economic issues.

As can be observed from the bar diagram, Mumbai's gender-based occupational segregation and marginalisation are significantly influenced by women's overrepresentation in marginal jobs. It is clear that the proportion of women compared to men is significantly higher among marginal workers and significantly lower among key workers. There are many obstacles that prevent women from pursuing formal career possibilities, including social and cultural norms that discourage them from doing so, a lack of access to education and training, and workplace discrimination on the basis of gender. Women are therefore more likely to work in low-paying, ad hoc positions with limited job security including domestic work, farm work, and petty commerce. Main workers, on the other hand, are more likely to hold a formal, permanent job with better pay and benefits. Certain sectors and industries, like construction, manufacturing, and engineering, which are traditionally dominated by men, can have a particularly large gender gap in major workers

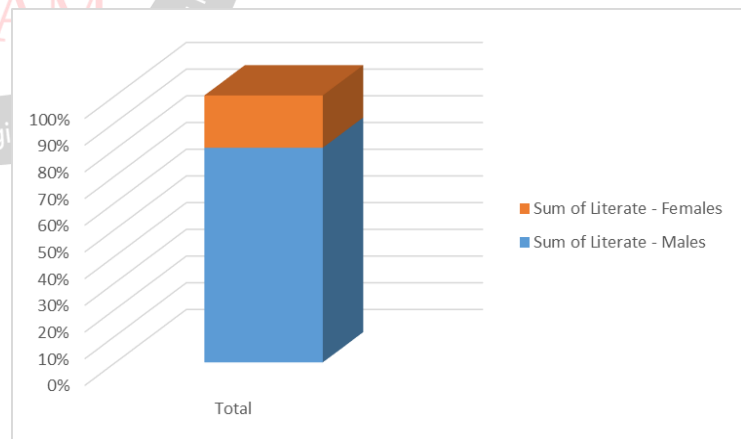
*B. By Literacy Level*

Literacy levels are also an important factor in the occupational classification of workers and their level of marginalization. Education is an essential tool for acquiring skills, knowledge, and competencies necessary for formal employment opportunities. In Mumbai, the literacy rate is lower for women compared to men, which limits women's access to education and training, and their ability to compete for formal employment opportunities. This contributes to the overrepresentation of women in marginal jobs, which are often low-paying and insecure.



**Figure 2 – Number of people who are illiterate, segregated by gender.**

The Graph above depicts the illiteracy levels amongst men and women. While the overall literacy rate in Mumbai is lower for women compared to men, illiteracy rates are higher in men in proportion to women compared to the population of both sexes. This is because men often have greater access to formal employment opportunities that do not require formal education, such as skilled trades and manual labor. Illiteracy rates among women are higher since social and cultural factors limit women's access to education and formal employment opportunities. As a result, illiteracy is a significant contributor to gender-based occupational segregation and marginalization, as it limits women's access to education and training, and their ability to compete for formal employment opportunities. Addressing the issue of illiteracy requires a comprehensive approach that addresses the underlying social, cultural, and economic factors that limit access to education, particularly for women in rural areas.



**Figure 3 – Bifocation of literate individuals by gender**

Although there isn't a significant disparity between men and women in the graph for illiteracy, the graph for literacy depicts the contrary, with a very small fraction of the total representation apportioned to the number of literate females. Women may face barriers to accessing education, such as lack of infrastructure, safety concerns, and financial constraints. As a result of these barriers, women may have limited opportunities to acquire the

necessary skills and knowledge to compete for formal employment opportunities. Therefore, it is important to address the gender gap in literacy rates to reduce gender-based occupational segregation.

C. By Education Level

The impact of secondary versus graduate level education on occupational segmentation and marginalization of women is an important area of study. Women are often concentrated in lower-paying and less skilled occupations, which can contribute to their overall marginalization in the labor market. The lack of access to higher education and graduate-level training opportunities can perpetuate this concentration of women in low-paying and marginalized occupations.

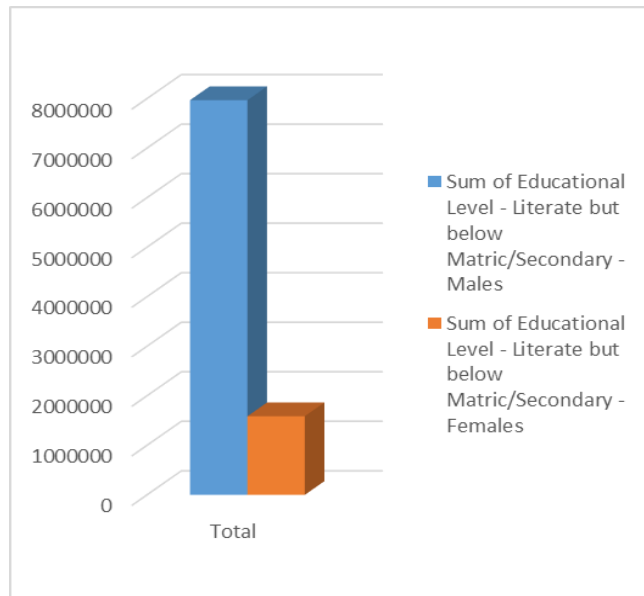


Figure 4 – Number of literate individuals who have not completed secondary education, segregated by gender.

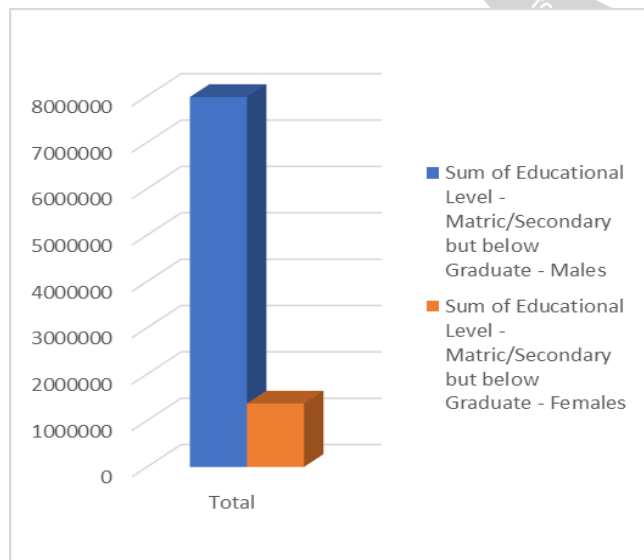


Figure 5- Number of literate individuals who have not completed graduation, segregated by gender.

The chart shows that a large proportion of both men and women in Mumbai do not have formal education beyond the secondary level.

However, there is a significant gender gap in educational attainment, with a greater proportion of women having no formal education and lower levels of educational attainment than men. For example, a higher percentage of women have no formal education compared to men, and a smaller percentage of women have completed secondary, higher secondary, and graduate levels of education compared to men. This suggests that women are more likely to face barriers to accessing education, including social norms, cultural attitudes, and economic constraints, which contribute to their overall marginalization in the labor market.

III. KARL PEARSON’S COEFFICIENT OF CORRELATION

Karl Pearson's coefficient of correlation is an statistical measure used to determine the strength and direction of the relationship between two variables. It is commonly used when dealing with continuous data that follow a normal distribution. By using Karl Pearson's coefficient of correlation, we have determined that here is a significant relationship between continuous variables such as literacy level, society and educational level and the dependent variable (the occupational classification of male and female workers).

With the help of the data, we computed the correlation between:

	Educational Level - Matric/Secondary but below Graduate	Educational Level - Literate but below Matric/Secondary	Literacy
Female workforce	0.947097	0.98594	0.99727
Male workforce	0.982378	0.997033	0.99967

Table 1 – Correlation between Education Levels, Literacy and the male and female workforce

A strong positive correlation between the level of education and the total number of workers present in both men and women can be observed. The total number of workers present increases dramatically as the degree of education of the workforce rises, according to the strong positive correlation between the level of education and the total number of workers present in both men and women. This could mean that there is a larger total labour market as a result of higher levels of education being linked to higher levels of skilled labour demand in the workforce.

It's also critical to remember that the number of workers on the job is strongly correlated with the education levels of both men and women. This suggests that in order to raise the general size of the workforce, it is essential to

encourage education and skill development among both men and women.

Additionally, studies have demonstrated that increasing the number of women in the workforce has positive effects on the economy, including raising productivity and lowering poverty. Therefore, encouraging women's access to education and employment is crucial to attaining gender equality and sustainable development.

Overall, the correlation between education levels and the total number of workers present highlights the importance of investing in education and skill development for both men and women to promote economic growth and social progress and improve women's status in society.

Basic literacy is crucial for both men and women to access employment opportunities and succeed in the workforce. Without basic literacy skills, individuals may struggle to understand job requirements, communicate effectively with colleagues and customers, and complete job-related tasks. Furthermore, advanced education and skill development may require a foundational understanding of reading. A person's employment options and earning potential may be constrained if they are unable to enroll in training programmes or gain further degrees. An important sign of the connection between education and employment is the association between literacy rates and the labour force. increased levels of literacy are likely linked to increased levels of employment for both men and women, according to a strong positive correlation between both genders' literacy levels and the workforce. This may suggest that literacy is a skill that is required for many jobs and that people who have higher levels of literacy are more likely to find employment.

The amount of workers overall and their level of education were shown to be strongly positively correlated in the study, for both men and women. The size of the workforce expanded dramatically along with education levels, indicating a larger labor market with more demand for skilled people.

Additionally, there was a significant correlation between the number of employees and both genders' degrees of education. This emphasizes the need of encouraging education and skill development for people of both sexes in order to increase the size of the workforce.

According to the study, adding more women to the labor force has a favorable effect on the economy by boosting production and lowering poverty. In order to achieve gender equality and sustainable development, it is essential to support women's access to education and employment.

**IV. REGRESSION ANALYSIS**

The number of literate people was the independent variable in the study, and a regression analysis was done to look at how it affected the dependent variables, the number of female and male workers. The findings indicated that both the female and male workforces were significantly impacted by the quantity of literate people.

Given that reading is a crucial requirement for entering the workforce, it was decided to include literacy as the independent variable in the regression analysis, giving recognition to its primacy in everyday life and importance in the work environment. People often have restricted chances for economic and social mobility and frequent exclusion from the labour market due to a lack of basic literacy skills.

**SUMMARY OUTPUT**

<i>Regression Statistics</i>	
Multiple R	0.99944491
R Square	0.998890128
Adjusted R Square	0.998885292

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	308.4259136	413.2636512	0.746318	0.455857682	-503.6973962	1120.549223	-503.6973962	1120.549
Literate Females	1.153977283	0.032190064	35.84887	3.8002E-135	1.090719116	1.217235451	1.090719116	1.217235
Literate Males	1.084354507	0.007582601	143.0056	0	1.06945359	1.099255423	1.06945359	1.099255

Equation obtained=

$$Y = 308.4259136 + 1.153977283X_1 + 1.084354501X_2$$

The study aimed to emphasise the significance of this fundamental ability for both male and female workforce participation by focusing simply on literacy as the independent variable. As a result, the study offers



significant new information about how literacy affects the occupational segmentation and marginalisation of women.

Furthermore, policymakers and stakeholders can use the knowledge that literacy is a crucial factor in determining employment participation to develop targeted initiatives to raise literacy rates, particularly among women who are more frequently than ever a part of the most marginalized groups.

The results of the regression analysis highlight the significance of literacy as a crucial element in motivating both men and women to enter the workforce. Both the female and male labor force grow as the number of literate persons rises, demonstrating that literacy has a substantial impact on how both genders participate in the workforce. This underlines the necessity for focused initiatives to raise literacy rates across the board in order to increase overall labor force participation and economic growth.

Furthermore, the regression analysis showed that women workers are more affected by literacy than men workers are. The importance of education and literacy in furthering gender equality and increasing female workforce participation is highlighted by this finding. Policymakers can help reduce gender inequalities in the workforce and offer more fair possibilities for women to thrive in their careers by promoting women's education and literacy.

The findings of the regression analysis support the idea that promoting gender equality and increasing workforce participation may both be accomplished by funding education and literacy programs. Society can create a more prosperous and welcoming atmosphere where everyone, regardless of gender, has the opportunity to realize their full potential through supporting initiatives that focus on boosting education and literacy.

## V. CONCLUSION

By conducting our survey and analysing the data, we aimed to achieve the following objectives:

- 1) Investigate the relationship between workforce participation, literacy rates, and educational attainment using statistical tools such as bar diagrams, Correlation and Regression
- 2) Identify the significant independent variables that influence workforce participation amongst females and males
- 3) Explore the potential impact of these variables on occupational segmentation and marginalization of women
- 4) Provide insights into the factors that contribute to gender disparities in the workforce

The study emphasizes the strong positive correlation between education attainment and the total workforce, for both men and women. The workforce grows dramatically as education levels rise, indicating a larger labor market with a stronger need for trained people. To increase the size of the workforce overall and support economic growth, it is crucial to encourage the education and skill development of both men and women.

The study also highlights how essential basic literacy is for both men and women to succeed in the job market and access employment opportunities. A crucial prerequisite for joining the workforce is literacy, and those who have higher levels of literacy are more inclined to get employment. Investment in literacy initiatives is essential for empowering people and lowering obstacles to social and economic mobility.

Regression study proved that literacy has a big impact on both genders' participation in the labor. As the study revealed, encouraging literacy had a more significant impact on female workers than it did on male workers, which makes it more crucial for women. This demonstrates the importance of promoting women's literacy and education in order to achieve gender equality and boost female workforce participation.

In Mumbai, there are notable discrepancies between the occupational classification of male and

female workers, with women predominating in low-paying, low-skilled positions.

Illiteracy, especially among women, is a significant barrier to workforce participation and occupational mobility. There is a strong correlation between workforce participation and educational attainment, with higher levels of education associated with higher occupational status and greater job security. Marginal workers, who are primarily women, are more vulnerable to economic fluctuations and are more likely to experience economic insecurity compared to main workers. According to the findings, initiatives targeted at expanding access to education and vocational training as well as raising literacy rates—especially among women—could aid in reducing gender gaps in the workforce. The study provides important insights into the factors that contribute to gender disparities in the workforce and can inform policy interventions aimed at reducing these disparities. It also highlights the need for policies that address occupational segregation and promote gender equality in the labour market.

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