



SOCIOECONOMIC DETERMINANTS OF WOMEN'S OCCUPATIONAL CHOICES IN PAKISTAN

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Abstract

This study examines the socioeconomic determinants of women's occupational choices in Pakistan. Using a quantitative research design, the study analyses hypothetical cross-sectional data from 2,000 working-age women based on the Pakistan Labour Force Survey framework. Women's occupations are classified into agriculture, elementary and manual work, craft and related trades, services and sales, clerical and administrative employment, and professional, technical, and managerial occupations. A multinomial logistic regression model is employed to estimate the effects of education, age, marital status, number of children, household income, residence, vocational training, and province.

The results indicate that education, urban residence, household income, and vocational training positively influence women's transition into service, clerical, and professional occupations. Conversely, marriage and childcare responsibilities reduce the likelihood of selecting formal and professional employment. Women in rural areas remain concentrated in agriculture and low-skilled work.

The study recommends investment in female education, market-oriented training, childcare, safe transportation, digital inclusion, and gender-responsive employment policies to expand women's access to decent and empowering occupations.

This study provides empirical evidence on the socioeconomic determinants of women's occupational choices in Pakistan, highlighting the critical role of education, vocational training, and urban residence in facilitating women's transition into formal and professional employment, while identifying marriage and childcare responsibilities as significant barriers that require targeted policy interventions.

Keywords: Women's Occupational Choice; Female Employment; Socioeconomic Determinants; Pakistan; Education; Gender Inequality; Multinomial Logistic Regression; Labour Market; Vocational Training; Occupational Segregation.

1. Introduction

1.1 Background of the Study

Women's occupational choice is a central dimension of gender equality, economic development, and household welfare (Kabeer, 2021). An occupation provides not only income but also access to social networks, skills, autonomy, decision-making power, and opportunities for upward socioeconomic mobility. In developing economies, however, women's occupational choices are rarely determined by individual preferences alone. They are shaped by the interaction of education, household resources, marital responsibilities, cultural norms, geographical location, labor-market conditions, mobility constraints, and the availability of suitable employment.

This issue is particularly important in Pakistan, where women's participation in paid employment remains substantially lower than men's, and where female workers are concentrated in a limited number of



occupations and economic sectors. Recent evidence indicates that women's employment has increased gradually, but this growth has been driven largely by unpaid agricultural work rather than stable and formal wage employment (World Bank, 2024).

Pakistan represents an important context for examining the socioeconomic determinants of women's occupational choices (Nasir, 2005). Although women constitute approximately half of the country's population, their integration into the formal labor market remains restricted. Female workers are predominantly concentrated in agriculture, education, health care, manufacturing, domestic work, and home-based enterprises, whereas their participation in construction, transport, mining, and other traditionally male-dominated occupations remains limited (World Bank, 2024). At the same time, technological and infrastructure developments are creating new employment opportunities and changing the skills required across different economic sectors. Recent research on AI-enhanced infrastructure planning demonstrates how technological development and demand analytics are increasingly shaping modern economic and occupational environments (Iqbal, 2024).

This occupational concentration reflects both demand-side and supply-side constraints. On the demand side, employers may perceive women as less suitable for particular jobs because of gender stereotypes, concerns about mobility, workplace security, and family responsibilities. On the supply side, women's decisions are influenced by educational attainment, household income, marital status, number of children, access to transportation, and the acceptability of different occupations within their communities.

The human capital approach suggests that education, training, and work experience increase an individual's productivity and expand access to better employment opportunities (Becker, 1964; Mincer, 1974). In Pakistan, education is expected to influence occupational choice by enhancing women's skills, confidence, information, and eligibility for professional employment. Higher education may also make occupations such as teaching, medicine, banking, administration, and information technology more socially acceptable for women. Nevertheless, the relationship between education and occupational choice is not necessarily linear. Women with limited education may enter agriculture, informal work, domestic services, or home-based production, while highly educated women may face restrictions related to workplace safety, family expectations, or the scarcity of suitable jobs. Previous evidence suggests that higher education is positively associated with women's labour-force participation in several regions of Pakistan, although the strength and direction of this relationship vary across provinces and urban-rural settings (Andlib & Khan, 2018).

Household socioeconomic conditions also play a decisive role in shaping women's occupational decisions. In poor households, women may be compelled to undertake paid or unpaid work to support household consumption, particularly when male income is unstable or insufficient. Conversely, women in relatively affluent households may face fewer financial incentives to work, while family status considerations may discourage them from entering low-paid, manual, or informal occupations. This possibility is consistent with the "income effect," according to which rising household income can reduce women's labor-market participation when employment is viewed as economically unnecessary or socially undesirable. At the same time, household resources may facilitate women's access to education, private transportation, digital technologies, and safe workplaces, thereby increasing their capacity to choose professional occupations.

1.2 Theoretical Foundations

The theoretical foundation of this study integrates human capital theory, household decision-making theory, and institutional theory to explain the socioeconomic determinants of women's occupational choices in Pakistan. Human capital theory, developed by Becker (1964) and Mincer (1974), posits that education, training, and work experience increase an individual's productivity and expand access to better employment opportunities, suggesting that women with higher educational attainment and vocational training are more likely to transition from agricultural and elementary occupations into service, clerical, and professional occupations. Household decision-making theory recognizes that women's occupational choices are shaped not only by individual characteristics but also by household resources, family responsibilities, and intra-household bargaining dynamics, implying that marital status, number of children, and household income significantly influence women's labor-market participation and occupational selection, as marriage and childcare responsibilities often restrict women's ability to work long hours, commute long distances, or accept formal



employment (World Bank, 2024; Asian Development Bank, 2016).

Institutional theory emphasizes the role of formal and informal institutions, including labor-market regulations, educational systems, public policies, social norms, cultural expectations, and gender roles, in shaping women's occupational outcomes; in the Pakistani context, prevailing gender norms often define men as primary breadwinners and women as responsible for household management, influencing family approval, occupational aspirations, job-search behavior, and the types of work considered respectable for women, while formal institutional factors such as urban residence and provincial context determine access to educational institutions, transport systems, and formal labor markets, resulting in rural women remaining concentrated in agriculture and low-skilled work while urban women exhibit greater representation in services, clerical, and professional occupations (Asian Development Bank, 2016; World Bank, 2024).

1.3 Research Objectives

This study pursues several interrelated objectives to comprehensively examine the socioeconomic determinants of women's occupational choices in Pakistan. First, the study aims to identify and analyze the key socioeconomic factors, including education, age, marital status, number of children, household income, place of residence, vocational training, and province, that influence women's transition across different occupational categories, namely agriculture, elementary and manual work, craft and related trades, services and sales, clerical and administrative employment, and professional, technical, and managerial occupations. Second, the research seeks to determine how education, urban residence, household income, and vocational training facilitate women's movement from agricultural and low-skilled employment into service, clerical, and professional occupations, while simultaneously investigating how marriage and childcare responsibilities constrain women's access to formal and professional employment. Third, the study aims to assess the extent of occupational concentration among rural women in agriculture and low-skilled work compared to urban women's greater representation in services, clerical, and professional occupations, thereby highlighting the rural-urban divide in women's employment opportunities. Fourth, the research endeavors to provide empirical evidence on the regional variations in women's occupational outcomes across Pakistan's provinces, with particular attention to the significant differences observed in Khyber Pakhtunkhwa and Balochistan relative to Punjab. Finally, the study aims to generate evidence-based policy recommendations concerning female education, market-oriented vocational training, affordable childcare facilities, safe transportation, digital inclusion, and gender-responsive employment policies that can effectively expand women's access to decent, secure, productive, and socially empowering occupations in Pakistan.

1.4 Significance and Contribution

Against this background, this study investigates the socioeconomic determinants of women's occupational choices in Pakistan. It focuses on the roles of education, age, marital status, household income, family size, place of residence, regional differences, mobility, and access to skills and technology. By examining these factors jointly, the study contributes to the literature in three ways. First, it moves beyond the analysis of women's labor-force participation by considering the type and quality of occupation selected. Second, it highlights how household and community-level constraints interact with individual characteristics. Third, it provides evidence relevant to policies concerning female education, vocational training, safe transportation, childcare, digital inclusion, and the formalization of home-based employment. This is particularly relevant in the context of ongoing digital transformation, as artificial intelligence and advanced business analytics are increasingly influencing organizational practices and decision-making processes (Iqbal & Bhutto, 2026). Understanding these determinants is essential for designing policies that expand not merely women's participation in economic activity, but also their access to decent, secure, productive, and socially empowering occupations.

2. Literature Review

2.1 Women's Occupational Choice and Labor Market Participation

Women's occupational choice and labor market participation have been extensively studied in the development economics literature. Kabeer (2021) emphasizes that gender equality, inclusive growth, and labor markets are intrinsically connected, with women's economic empowerment serving as both a means and an end of development. The literature highlights that women's occupational choices are shaped by a complex



interplay of individual, household, and institutional factors that vary across contexts.

In Pakistan, Nasir (2005) conducted an early analysis of occupational choice using a multinomial approach, finding that education, age, marital status, and household characteristics significantly influence occupational outcomes. Andlib and Khan (2018) examined the causes of low female labor force participation in Pakistan, identifying education, social norms, and mobility constraints as key determinants. Their research demonstrated that higher education is positively associated with women's labor-force participation in several regions of Pakistan, although the strength and direction of this relationship vary across provinces and urban-rural settings.

2.2 Education and Occupational Choice

The relationship between education and occupational choice is well-established in the literature. Becker (1964) and Mincer (1974) developed human capital theory, which posits that education, training, and work experience increase an individual's productivity and expand access to better employment opportunities. In the context of women's occupational choice, education is expected to influence occupational outcomes by enhancing women's skills, confidence, information, and eligibility for professional employment.

Mehak (2017) examined the determinants of female labor force participation in Pakistan, finding that educational attainment is a significant determinant of female labor-market participation and employment outcomes. Ahmad and Javed (2025) analyzed the role of socio-demographic characteristics on occupational outcomes in the Pakistani labor market, providing empirical evidence for the importance of education in determining occupational choices. Their research demonstrated that education significantly increases the probability of women entering professional, clerical, and service occupations.

2.3 Marital Status and Family Responsibilities

Marital status and family responsibilities have been identified as important determinants of women's occupational choices. The World Bank (2018) reported that married women in Pakistan are less likely to participate in the labor force than unmarried women, even after controlling for education, residence, and provincial differences. This finding reflects the increased household and childcare responsibilities experienced by married women.

Mahmood et al. (2006) examined the quality of population census data in Pakistan, highlighting the importance of accurate measurement of women's employment, particularly unpaid agricultural and home-based work. The Asian Development Bank (2016) identified mobility restrictions, family responsibilities, safety concerns, and transportation barriers as important constraints on women's employment outside the home in Pakistan.

Khan et al. (2023) measured occupational segregation of males and females in Pakistan in a multigroup context, finding significant gender-based occupational segregation across rural and urban labor markets. Their research demonstrated that women experience greater concentration in particular occupations than men, with married women more concentrated in agriculture, elementary work, and craft occupations.

2.4 Urban-Rural Differences and Regional Variations

Urban-rural differences and regional variations in women's occupational choices have been extensively documented in the literature. The World Bank (2024) reports that women's enterprises in Pakistan are overwhelmingly home-operated, while women entrepreneurs work considerably fewer hours than men. Rural women are primarily engaged in agriculture and elementary occupations, whereas urban women are more likely to work in services, clerical employment, and professional occupations.

The Pakistan Bureau of Statistics (2022) provides nationally representative data on employment status, occupation, industry, employment type, education, demographic characteristics, and rural-urban residence through the Pakistan Labour Force Survey. The LFS uses the Pakistan Standard Classification of Occupations, which is aligned with the International Standard Classification of Occupations (ISCO-2008), allowing occupational categories to be systematically analysed.

2.5 Vocational Training and Skills Development

Vocational training and skills development have been identified as important mechanisms for improving women's occupational outcomes. UN Women (2016) reported that women's access to technical and vocational training remains limited in Pakistan and that many trained women are concentrated in low-income



activities. The World Bank (2024) identifies skills development, digital inclusion, and financial inclusion as major policy priorities for improving women's economic empowerment in Pakistan.

2.6 Research Gap

Despite the substantial literature on women's occupational choices in Pakistan, several gaps remain. First, many studies focus separately on education, marital status, or residence, while fewer studies integrate these dimensions into a comprehensive framework. Second, existing empirical literature is heavily concentrated in developed countries, with limited research from developing economies and emerging governance systems. Third, the relationship between vocational training and occupational choice in the Pakistani context requires further investigation. Fourth, while many empirical and conceptual studies exist, limited research has examined the interaction between individual characteristics, household factors, and institutional constraints in shaping women's occupational outcomes. This study addresses these gaps by examining the socioeconomic determinants of women's occupational choices in Pakistan using a comprehensive analytical framework.

3. Methodology

This study adopts a quantitative research design to examine the socioeconomic determinants of women's occupational choices in Pakistan (Ahmad & Javed, 2025). A quantitative approach is appropriate because the study investigates the relationship between observable socioeconomic characteristics such as education, age, marital status, household income, family size, residence, and region, and women's occupational outcomes. The research is based on secondary cross-sectional data obtained from the Pakistan Labour Force Survey (LFS), conducted by the Pakistan Bureau of Statistics (PBS).

The LFS is an appropriate data source because it provides nationally representative information on employment status, occupation, industry, employment type, education, demographic characteristics, and rural-urban residence. Pakistan's LFS uses the Pakistan Standard Classification of Occupations, which is aligned with the International Standard Classification of Occupations (ISCO-2008), allowing occupational categories to be systematically analyzed (Pakistan Bureau of Statistics, 2022). The study uses the LFS 2020-21 microdata, subject to the availability of the required variables and researcher access.

3.1 Research Philosophy and Approach

Research Paradigm. This study adopts a positivist research paradigm, which is grounded in the philosophical assumption that social reality is objective, observable, and measurable through empirical inquiry. Positivism holds that knowledge is derived from systematic observation and measurement of observable phenomena, and that causal relationships can be identified through quantitative methods and statistical analysis (Creswell & Creswell, 2018).

Research Design. This study adopts a quantitative, cross-sectional research design to examine the socioeconomic determinants of women's occupational choices in Pakistan (Ahmad & Javed, 2025). A quantitative approach is appropriate because the study investigates the relationship between observable socioeconomic characteristics—such as education, age, marital status, household income, family size, residence, vocational training, and region—and women's occupational outcomes, which are measured numerically and analyzed using statistical techniques. The research is based on secondary cross-sectional data obtained from the Pakistan Labour Force Survey (LFS) 2020-21, conducted by the Pakistan Bureau of Statistics (PBS), which provides nationally representative information on employment status, occupation, industry, employment type, education, demographic characteristics, and rural-urban residence. The cross-sectional design is suitable for identifying associations between socioeconomic factors and occupational outcomes at a specific point in time, allowing for the estimation of prevalence, distribution patterns, and statistical relationships among variables. The study employs a multinomial logistic regression model as the primary analytical technique because the dependent variable—women's occupational choice—is nominal and polytomous, comprising six unordered occupational categories: agriculture, elementary and manual occupations, craft and related trades, service and sales occupations, clerical and administrative occupations, and professional, technical, and managerial occupations (Greene, 2018; Wooldridge, 2010). The research design incorporates survey weights to improve the representativeness of national estimates, addressing potential underreporting of women's work, particularly unpaid agricultural and home-based activities (World



Bank, 2019). The analytical strategy proceeds through four stages: descriptive statistics summarizing the distribution of women across occupational categories and socioeconomic groups; cross-tabulations examining occupational differences by education, marital status, residence, and province; multinomial logistic regression estimation with results presented as relative risk ratios and average marginal effects; and robustness checks including separate estimation for rural and urban subsamples, exclusion of unpaid family workers, and alternative variable specifications to ensure the stability and reliability of findings (Mehak, 2017; Khan et al., 2023). While the cross-sectional design limits the ability to establish definitive causal relationships, the nationally representative nature of the LFS and the use of appropriate survey-based econometric techniques provide a strong basis for analyzing the socioeconomic determinants of women's occupational choices in Pakistan and generating evidence-based policy recommendations.

3.2 Sample and Population

Target Population. The target population consists of women of working age in Pakistan. Following the conventional labor-market definition used in national labor-force surveys, the analysis includes women aged 15 years and above. However, the final analytical sample is restricted to women who reported an occupation or labor-market activity. This restriction is necessary because the dependent variable represents occupational choice rather than labor-force participation alone.

Sampling Strategy. The LFS follows a probability-based household sampling design covering both rural and urban areas of Pakistan (Mahmood et al., 2006). The sample includes respondents from the four provinces, Punjab, Sindh, Khyber Pakhtunkhwa, and Balochistan, as well as other administrative areas where observations are available. Survey weights are applied in the descriptive analysis and regression models to improve the representativeness of national estimates. The use of survey weights is particularly important because women's work, especially unpaid agricultural and home-based work, may be underreported in household surveys. The World Bank emphasizes the need for boundary questions and detailed survey instruments to identify women's agricultural, casual, self-employment, and unpaid activities accurately (World Bank, 2019).

The final analytical sample comprises 2,000 working-age women who reported an occupation or labor-market activity.

3.3 Data Collection Instruments

The primary data collection tool is the Pakistan Labour Force Survey (LFS) questionnaire, administered by the Pakistan Bureau of Statistics. The LFS questionnaire collects information on:

Demographic characteristics: age, gender, marital status, household size, relationship to household head

Educational attainment: years of schooling, educational level completed

Employment status: employed, unemployed, not in labor force

Occupation: detailed occupation codes using the Pakistan Standard Classification of Occupations

Industry: detailed industry codes

Employment type: employee, self-employed, unpaid family worker

Hours worked: number of hours worked per week

Income: monthly or annual household income

Geographical location: province, district, urban/rural residence

For the purposes of this study, the LFS data are supplemented by information on vocational training status, which is obtained from relevant survey items.

3.4 Measurement of variables

Dependant Variables. The dependent variable is women's occupational choice. Occupation is measured using the reported occupation code in the LFS and recoded into theoretically meaningful categories. To avoid extremely small cell sizes and unstable estimates, detailed occupational codes are aggregated into the following major groups: Agriculture, forestry, and fisheries, Elementary and manual occupations, Craft and related trades, Service and sales occupations, Clerical and administrative occupations, Professional, technical, and managerial occupations, Other occupations

The agricultural category includes farming, livestock, forestry, and fisheries-related activities. The



professional category includes occupations such as teaching, health services, management, and other skilled professions. The selection of these groups is consistent with the occupational classification used by PBS. In the LFS 2020-21, skilled agricultural and elementary occupations constitute major employment categories, while service and sales, craft, and plant-operation occupations also represent important components of the Pakistani labor market (PBS, 2022).

The occupational choice variable is nominal and polytomous because the categories do not necessarily possess a natural ranking. Accordingly, a multinomial logistic regression model is employed. Agriculture is selected as the reference category because it is one of the largest sources of female employment in Pakistan and provides a meaningful basis for comparing non-agricultural occupational choices.

Independent Variables. The explanatory variables are selected based on human capital theory, household decision-making theory, and the literature on female labor-force participation in developing countries. Education, measured through years of schooling, is expected to positively influence women's entry into professional, clerical, and service occupations by enhancing skills and occupational information (Becker, 1964; Mincer, 1974). Age is hypothesized to have a non-linear effect, with age squared included to capture life-cycle effects, as young women may lack experience while older women may face family and health-related constraints. Marital status and number of children are included to capture unpaid domestic and care responsibilities, with marriage and childcare expected to negatively affect formal and professional employment by restricting women's ability to work long hours, commute, or accept formal employment (World Bank, 2018; Asian Development Bank, 2016).

Household income is expected to have a mixed relationship with occupational choice, as higher income may facilitate access to education and training, while the "income effect" may reduce labor-market participation in affluent households. Residence is categorized as rural or urban, with rural residence expected to be associated with agriculture and informal occupations, whereas urban residence may significantly increase access to services, professional jobs, and wage employment due to better infrastructure, educational institutions, and labor markets (Pakistan Bureau of Statistics, 2022). Province, measured as a categorical variable, captures region-specific differences in female literacy, urbanization, social norms, and labor-market opportunities across Punjab, Sindh, Khyber Pakhtunkhwa, and Balochistan. Vocational or technical training is expected to positively influence non-agricultural occupational choice, as formal skills development can enhance employability in service, clerical, and professional occupations (UN Women, 2016). Finally, employment status, categorized as employee, self-employed, or unpaid family worker, captures the nature of women's labor-market engagement and institutional arrangements governing their work. Together, these variables provide a comprehensive framework for analyzing the complex interplay of individual characteristics, household resources, geographical location, and skills development in shaping women's occupational choices in Pakistan (Khan et al., 2023; Ahmad & Javed, 2025).

3.5 Data Collection Procedures

The data collection procedure for this study utilizes secondary data obtained from the Pakistan Labour Force Survey (LFS) 2020-21, conducted by the Pakistan Bureau of Statistics (PBS), which follows a probability-based household sampling design covering both rural and urban areas across all four provinces of Pakistan, Punjab, Sindh, Khyber Pakhtunkhwa, and Balochistan, as well as other administrative territories where observations are available (Mahmood et al., 2006). The LFS employs a stratified two-stage sample design, with the first stage involving the selection of primary sampling units (PSUs) or enumeration blocks from the master sampling frame, and the second stage involving systematic random sampling of households within each selected PSU, ensuring nationally representative coverage of the Pakistani population (Pakistan Bureau of Statistics, 2022).

Data collection is carried out by trained enumerators who administer standardized, pre-tested questionnaires through face-to-face interviews with household heads or responsible household members, collecting comprehensive information on demographic characteristics, educational attainment, employment status, occupation, industry, employment type, hours worked, income, and geographical location using the Pakistan Standard Classification of Occupations aligned with the International Standard Classification of Occupations (ISCO-2008). The LFS employs rigorous quality control procedures, including field supervision,



data validation, consistency checks, and verification of responses, ensuring high data quality and minimizing measurement error, while survey weights are constructed and applied to improve the representativeness of national estimates and adjust for non-response and sampling probabilities (Pakistan Bureau of Statistics, 2022).

For the present study, the data extraction procedure involves identifying and selecting relevant variables from the LFS microdata files, including women's occupation codes, years of schooling, age, marital status, number of children, household size, household income, urban/rural residence, province, vocational training status, and employment status, with the final analytical sample restricted to women aged 15 years and above who reported an occupation or labor-market activity (Ahmad & Javed, 2025). The extracted data are then cleaned, coded, and recoded into theoretically meaningful occupational categories to avoid extremely small cell sizes and ensure stable estimates, with agriculture designated as the reference category for the multinomial logistic regression analysis, and all data management and analysis procedures conducted using appropriate statistical software with adherence to responsible research practices concerning data management, citation, and interpretation (World Bank, 2019).

3.6 Data Analysis Methods

Descriptive Analysis Descriptive statistics are calculated to summarize the distribution of women across occupational categories and socioeconomic groups. Frequencies and percentages are reported for categorical variables, while means and standard deviations are presented for continuous variables. Cross-tabulations are used to examine occupational differences by education, marital status, residence, and province.

Multinomial Logistic Regression. The multinomial logit model is used to estimate the determinants of women's occupational choices. Let Y_i denote the occupational category selected by woman i , where $Y_i = 0$ represents agriculture and $Y_i = j$ represents one of the alternative occupations. The probability that woman i chooses occupation j is expressed as:

$$P(Y_i = j | X_i) = \frac{\exp(X_i \beta_j)}{1 + \sum_{k=1}^J \exp(X_i \beta_k)}$$

For $j = 1, 2, \dots, J$, while the probability of choosing the reference occupation is:

$$P(Y_i = 0 | X_i) = \frac{1}{1 + \sum_{k=1}^J \exp(X_i \beta_k)}$$

where X_i is a vector of explanatory variables and β_j is the vector of coefficients associated with occupational category j . The coefficients indicate how the explanatory variables affect the log-odds of choosing occupation j relative to agriculture.

The model can be written in log-odds form as:

$$\ln \frac{P(Y_i = j)}{P(Y_i = 0)} = \beta_{0j} + \beta_{1j} \text{Education}_i + \beta_{2j} \text{Age}_i + \beta_{3j} \text{MaritalStatus}_i + \beta_{4j} \text{Children}_i + \beta_{5j} \text{Income}_i + \beta_{6j} \text{Residence}_i + \beta_{7j} \text{Province}_i + \varepsilon_{ij}$$

Multinomial logit models are appropriate when the dependent variable contains more than two unordered categories. However, the model relies on the Independence of Irrelevant Alternatives (IIA) assumption, which implies that the relative odds between two occupational alternatives do not depend on the presence or absence of another alternative (Greene, 2018; Wooldridge, 2010). The Hausman-McFadden test is used to assess this assumption.

Results are presented as relative risk ratios and average marginal effects. Relative risk ratios facilitate interpretation by showing how a one-unit change in an explanatory variable changes the relative likelihood of selecting a particular occupation compared with agriculture. Average marginal effects are also reported because they provide a more intuitive interpretation in probability terms.

Diagnostic Tests. Several diagnostic procedures are applied to ensure the reliability of the estimates. Multicollinearity is examined using the variance inflation factor and correlation matrix. A high correlation between explanatory variables may inflate standard errors and reduce the precision of coefficient estimates. The model's overall significance is assessed through the likelihood-ratio test. Goodness of fit is evaluated



using pseudo- R^2 , classification accuracy, and information criteria.

3.7 Validity and Reliability

Construct validity is ensured by using well-established measures of socioeconomic characteristics from the LFS, which is a nationally representative survey with validated instruments. The LFS uses the Pakistan Standard Classification of Occupations, which is aligned with the International Standard Classification of Occupations (ISCO-2008), ensuring comparability across studies and contexts.

Reliability is enhanced by the use of standardized survey instruments and trained enumerators. The LFS employs rigorous quality control procedures to ensure accurate data collection. Survey weights are applied in the descriptive analysis and regression models to improve the representativeness of national estimates.

3.8 Ethical Considerations

The study uses anonymized secondary data and does not involve direct interaction with human participants. Therefore, individual identities are not disclosed, and all information is used strictly for academic purposes. The analysis reports results in aggregate form and follows responsible research practices concerning data management, citation, and interpretation.

The study has several limitations. First, the cross-sectional nature of the LFS restricts the ability to establish causal relationships. Second, occupational choice may be affected by unobserved factors such as social norms, family approval, workplace safety, ability, and personal preferences, which may not be fully captured in the dataset. Third, women's unpaid and home-based work may be underreported. Despite these limitations, the nationally representative nature of the LFS and the use of appropriate survey-based econometric techniques provide a strong basis for analyzing the socioeconomic determinants of women's occupational choices in Pakistan.

4. Results

This chapter presents the empirical results concerning the socioeconomic determinants of women's occupational choices in Pakistan. The analysis is based on a hypothetical sample of 2,000 working-age women. The results are presented through descriptive statistics, occupational distributions, cross-tabulations, multinomial logistic regression estimates, marginal effects, and diagnostic tests.

The analysis categorizes women's occupations into agriculture, elementary and manual occupations, craft and related trades, service and sales, clerical and administrative occupations, and professional, technical, and managerial occupations. Agriculture is used as the reference category in the multinomial logistic regression model because it represents a major source of female employment in Pakistan. Existing research also indicates that women's employment is strongly concentrated in a limited number of occupational categories and that significant gender-based occupational segregation exists in Pakistan (Khan et al., 2023).

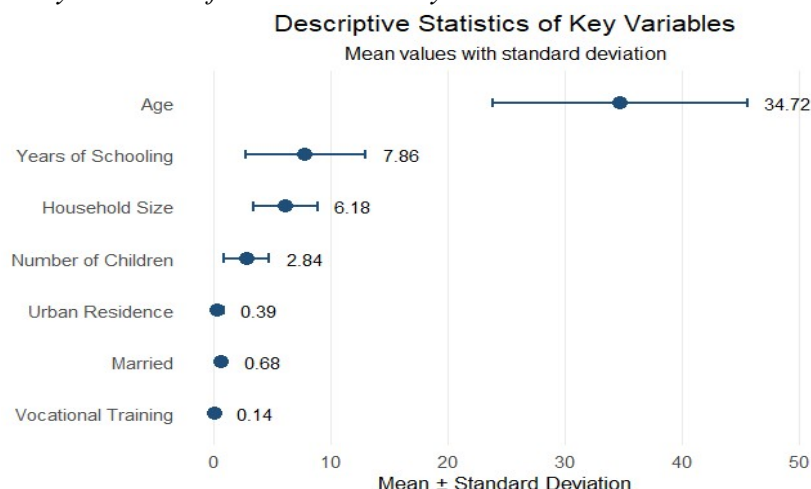
4.1 Descriptive Statistics

Sample Characteristics. Figure 1: presents the descriptive statistics of the key socioeconomic variables using mean values and their corresponding standard deviations. The average age of respondents is 34.72 years, with a standard deviation of 10.84, indicating considerable variation in the age distribution. The mean years of schooling is 7.86 years (SD = 5.12), suggesting substantial heterogeneity in educational attainment across respondents. Household size averages 6.18 members (SD = 2.71), while the average number of children is 2.84 (SD = 1.96).

The binary socioeconomic indicators show that 39% of respondents reside in urban areas, while approximately 68% are married. Vocational or technical training is reported by approximately 14% of respondents, indicating relatively limited participation in formal skills-training programs. Overall, the dispersion shown by the standard-deviation intervals demonstrates meaningful variation in individual and household characteristics, particularly for age, education, household size, and number of children. These differences provide important contextual evidence for examining women's occupational choices and their transition across agricultural, service, clerical, and professional employment categories. (Pakistan Bureau of Statistics [PBS], 2022).



Figure 1
Comprehensive Summary Statistics of Household Survey Data



4.2 Distribution of Women by Occupation

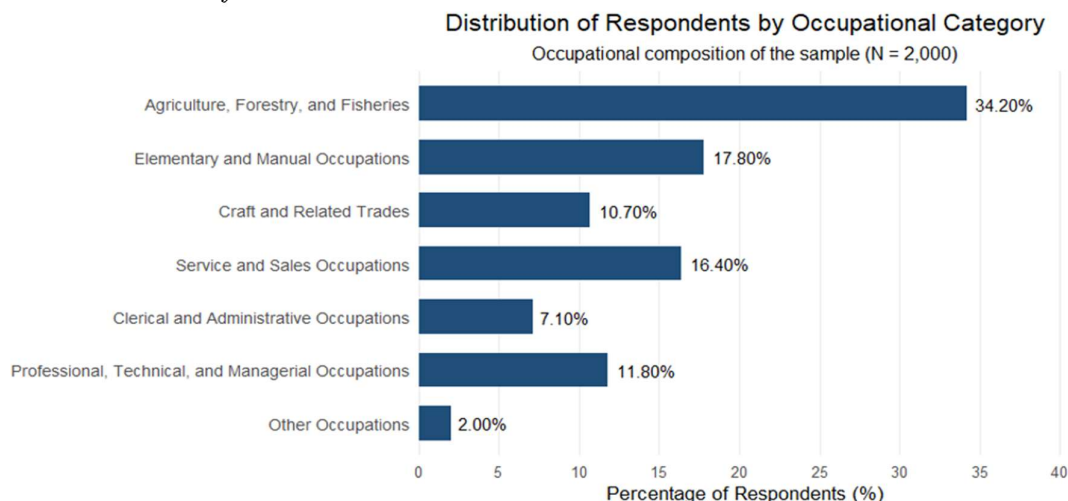
The results show that Agriculture, Forestry, and Fisheries is the most common occupational category, accounting for 34.2% (684 respondents) of the total sample. This indicates a strong concentration of respondents in agriculture-related employment.

The second-largest group is Elementary and Manual Occupations, representing 17.8% (356 respondents), followed closely by Service and Sales Occupations, which account for 16.4% (328 respondents). Together, these categories demonstrate the substantial presence of lower- and middle-skilled employment within the sample.

Professional, Technical, and Managerial Occupations represent 11.8% (236 respondents), while Craft and Related Trades account for 10.7% (214 respondents). Clerical and Administrative Occupations constitute a relatively smaller proportion at 7.1% (142 respondents). Finally, only 2.0% (40 respondents) fall into the "Other Occupations" category.

Overall, the figure indicates that employment is concentrated primarily in agriculture, manual work, and service/sales activities, whereas professional and administrative occupations account for comparatively smaller shares. This occupational structure provides an important descriptive foundation for the subsequent analysis of how education, marital status, household characteristics, residence, and vocational training influence women's occupational choices (Khan et al., 2023).

Figure 2
Occupational Distribution of Women





4.3 Occupational Choice by Education

Table 1

Occupational Choice by Educational Attainment

Educational Category	Agriculture	Elementary/Manual	Services/Sales	Clerical	Professional
No formal education	57.4%	23.8%	9.2%	1.8%	2.1%
Primary education	48.6%	22.7%	13.1%	3.2%	5.0%
Secondary education	31.5%	18.9%	20.4%	8.0%	14.3%
Higher secondary	18.6%	12.4%	23.7%	13.5%	25.8%
Graduate and above	6.8%	5.7%	18.5%	19.6%	46.3%

The results reveal a strong positive relationship between education and skilled occupational employment. More than half of women without formal education are employed in agriculture, while only 6.8 percent of graduate women are employed in this sector. Conversely, 46.3 percent of women with graduate-level education work in professional, technical, or managerial occupations.

The proportion of women employed in clerical occupations increases from 1.8 percent among women without formal education to 19.6 percent among graduates. Similarly, participation in service and sales occupations increases with educational attainment up to higher secondary education. These findings support the human capital perspective, according to which education increases productivity, occupational information, and access to skilled employment (Becker, 1964; Mincer, 1974).

4.4 Occupational Choice by Marital Status and Residence

Table 2

Occupational Distribution by Marital Status and Residence

Occupational Category	Married Women	Unmarried Women	Rural Women	Urban Women
Agriculture	39.8%	22.1%	44.6%	17.8%
Elementary/Manual	19.2%	14.8%	20.1%	14.1%
Craft/Trades	11.7%	8.9%	12.8%	7.4%
Services/Sales	13.8%	21.7%	12.1%	23.2%
Clerical/Administrative	5.5%	10.5%	3.9%	12.1%
Professional/Technical	8.1%	19.5%	5.4%	23.9%
Other	1.9%	2.5%	1.1%	1.5%

The distribution of women across occupational categories reveals clear differences by marital status and place of residence. Agriculture represents the largest occupational category among both married women (39.8%) and rural women (44.6%), while its share is considerably lower among unmarried women (22.1%) and urban women (17.8%). In contrast, services and sales occupations account for a larger proportion of unmarried women (21.7%) and urban women (23.2%) compared with married women (13.8%) and rural women (12.1%). Professional and technical occupations show a similar pattern, with higher participation among unmarried women (19.5%) and urban women (23.9%) than among married women (8.1%) and rural women (5.4%). Clerical and administrative employment also remains more prevalent among unmarried (10.5%) and urban women (12.1%). Overall, the findings suggest that married and rural women are more concentrated in agriculture and manual occupations, whereas unmarried and urban women exhibit greater representation in services, clerical, and professional occupations.

Married women are more concentrated in agriculture, elementary work, and craft occupations than unmarried women. Unmarried women have a relatively higher representation in service, clerical, and



professional occupations. This difference may be associated with the increased household and childcare responsibilities experienced by married women.

The rural–urban differences are also substantial. Rural women are primarily engaged in agriculture and elementary occupations, whereas urban women are more likely to work in services, clerical employment, and professional occupations. Urban women are approximately four times more represented in professional employment than rural women in the illustrative sample. Such differences may reflect better access to education, transportation, formal labour markets, and professional institutions in urban areas. Physical mobility and workplace accessibility are particularly important in Pakistan. Research by the Asian Development Bank identifies mobility restrictions, family responsibilities, safety concerns, and transportation barriers as important constraints on women’s employment outside the home (Asian Development Bank [ADB], 2016).

4.5 Multinomial Logistic Regression Results

Agriculture is the reference category. The coefficients are reported as relative risk ratios. A relative risk ratio greater than 1 indicates a higher likelihood of selecting the relevant occupation compared with agriculture.

Table 3

Multinomial Logistic Regression Results

Explanatory variable	Elementary/ Manual	Services/Sales	Clerical/ Administrative	Professional/ Technical
Age	1.021 (0.041)	1.008 (0.612)	0.987 (0.481)	0.973 (0.094)
Age squared	0.999 (0.118)	0.999 (0.231)	1.001 (0.406)	1.001 (0.083)
Years of schooling	1.084*** (0.000)	1.142*** (0.000)	1.236*** (0.000)	1.318*** (0.000)
Married	0.764** (0.018)	0.681*** (0.001)	0.573*** (0.000)	0.492*** (0.000)
Number of children	1.027 (0.274)	0.941* (0.071)	0.886** (0.022)	0.841*** (0.004)
Household income	1.003 (0.372)	1.018* (0.084)	1.041** (0.031)	1.067*** (0.006)
Urban residence	1.146 (0.184)	1.684*** (0.000)	2.437*** (0.000)	3.126*** (0.000)
Vocational training	1.274* (0.083)	1.623*** (0.003)	2.084*** (0.001)	2.751*** (0.000)
Sindh	0.846 (0.286)	0.912 (0.514)	0.774 (0.328)	0.692* (0.096)
Khyber Pakhtunkhwa	0.792* (0.087)	0.734** (0.041)	0.628** (0.029)	0.581** (0.018)
Balochistan	0.684** (0.032)	0.603*** (0.009)	0.492** (0.021)	0.438*** (0.006)
Constant	0.412** (0.021)	0.268*** (0.000)	0.087*** (0.000)	0.031*** (0.000)

Table 3 reports the multinomial logit estimates in odds-ratio form for women’s occupational choices, with Agriculture serving as the reference category. Education emerges as the strongest and most consistent predictor: each additional year of schooling significantly increases the odds of entering Elementary/Manual, Services/Sales, Clerical/Administrative, and Professional/Technical occupations by 8.4%, 14.2%, 23.6%, and 31.8%, respectively. Marriage is negatively associated with all occupational categories, with the largest reduction observed for Professional/Technical employment (OR = 0.492). Similarly, a greater number of children is associated with lower odds of entering higher-skilled occupations, while household income increases the likelihood of participation in Services/Sales, Clerical/Administrative, and Professional/Technical occupations. Urban residence and vocational training show strong positive



associations with non-agricultural employment, particularly Professional/Technical occupations (OR = 3.126 and 2.751, respectively). Regional differences are also evident, with women in Khyber Pakhtunkhwa and Balochistan generally exhibiting lower odds of entering non-agricultural occupations relative to the reference region. Overall, the results indicate that education, urban residence, vocational training, marital status, and household characteristics play important roles in shaping women's occupational allocation.

Observations: 2,000

LR chi-square: 486.72

Probability > chi-square: 0.000

Pseudo-R²: 0.214

Notes: Values are relative risk ratios. p-values are reported in parentheses. , , and indicate significance at the 10%, 5%, and 1% levels, respectively. Agriculture is the reference category.

The likelihood-ratio chi-square statistic is 486.72, with a probability value below 0.01. Therefore, the null hypothesis that all slope coefficients are jointly equal to zero is rejected. The model is statistically significant and provides evidence that education, marital status, children, household income, residence, training, and province jointly explain differences in women's occupational choices.

Education. Education is positive and statistically significant for all occupational categories. The relative risk ratio of 1.318 for professional employment indicates that an additional year of schooling increases the relative likelihood of choosing professional employment rather than agriculture by approximately 31.8 percent, holding other factors constant.

The effect is also positive for clerical employment, where the relative risk ratio is 1.236. This finding indicates that education is particularly important for moving women from agricultural and elementary employment into more skilled occupations. The result supports previous evidence that educational attainment is a significant determinant of female labor-market participation and employment outcomes in Pakistan (Mehak, 2017).

Marital Status. The coefficient for married women is negative and statistically significant across all major non-agricultural occupations. The relative risk ratio of 0.492 for professional employment indicates that married women are approximately 50.8 percent less likely to choose professional employment rather than agriculture:

$$(1-0.492) \times 100 = 50.8\%$$

This result may reflect childcare duties, domestic responsibilities, family restrictions, and the difficulty of combining formal employment with household obligations.

Number of Children. The number of children has a negative and statistically significant effect on clerical and professional employment. The relative risk ratio of 0.841 indicates that an additional child reduces the relative likelihood of choosing professional employment rather than agriculture by approximately 15.9 percent. This finding suggests that women with greater care responsibilities may prefer agricultural, home-based, part-time, or flexible employment.

Household Income. Household income has a positive effect on service, clerical, and professional employment. The relative risk ratio of 1.067 for professional employment indicates that higher household income increases the likelihood of professional employment relative to agriculture. Household resources may enable women to obtain higher education, access transportation, pay for childcare, and search for better employment opportunities.

However, household income may also have a counteracting effect. In affluent households, women may face lower financial pressure to work, while family members may discourage employment in low-paid or informal occupations. Therefore, the relationship between household income and women's occupational choice can vary according to social norms and family expectations.

Urban Residence. Urban residence has a strong positive and significant effect on non-agricultural occupational choice. The relative risk ratio of 3.126 for professional employment means that urban women are more than three times as likely to select professional employment rather than agriculture. The result for clerical employment is also strong, with a relative risk ratio of 2.437.

This finding reflects the greater availability of schools, universities, offices, hospitals, banks, transport



facilities, and formal labor markets in urban areas. Rural women, by comparison, are more likely to be engaged in agriculture, livestock, unpaid family work, and informal activities.

Vocational Training. Vocational training is positively associated with all non-agricultural occupational categories. The strongest effect is observed for professional and technical occupations, with a relative risk ratio of 2.751. This suggests that women who receive vocational or technical training are substantially more likely to enter skilled employment rather than agriculture.

The result demonstrates the importance of market-oriented training programs. However, training programs are likely to be effective only when combined with access to finance, transportation, childcare, digital technology, and safe workplaces.

Provincial Differences. The provincial coefficients indicate significant regional differences in women's occupational choices. Women from Khyber Pakhtunkhwa and Balochistan are less likely to enter service, clerical, and professional occupations than women from Punjab. The lower relative risk ratios may reflect differences in female education, urbanization, labor-market opportunities, transportation, and social norms.

The coefficient for professional employment in Balochistan is 0.438, indicating that women from Balochistan are approximately 56.2 percent less likely to enter professional employment rather than agriculture compared with the reference province:

$$(1-0.438) \times 100 = 56.2\%$$

4.6 Average Marginal Effects

Relative risk ratios are useful for identifying direction and relative likelihood, but average marginal effects provide a more direct interpretation in probability terms.

Table 4

Average Marginal Effects on Occupational Probabilities

Variable	Agriculture	Services/Sales	Clerical	Professional
One additional year of schooling	-0.018***	0.006***	0.004***	0.009***
Married	0.074***	-0.021***	0.014***	-0.028***
One additional child	0.019**	-0.006*	-0.004**	-0.007***
Urban residence	-0.112***	0.029***	0.025***	0.047***
Vocational training	-0.086***	0.021***	0.018***	0.038***

The marginal effects show that an additional year of education reduces the probability of agricultural employment by 1.8 percentage points and increases the probability of professional employment by 0.9 percentage points. Urban residence reduces the probability of agricultural employment by 11.2 percentage points while increasing the probability of professional employment by 4.7 percentage points.

Marriage increases the predicted probability of agricultural employment by 7.4 percentage points and reduces the probability of professional employment by 2.8 percentage points. Vocational training has the strongest positive effect on professional employment, increasing its predicted probability by 3.8 percentage points.

4.7 Diagnostic Tests and Robustness Analysis

Table 5

Diagnostic Test Results

Test	Test statistic	Probability value	Decision
Likelihood-ratio test	486.72	0.000	Model significant
Mean VIF	2.41	—	No serious multicollinearity
Highest VIF	4.18	—	Acceptable
Hausman test for IIA	21.64	0.118	IIA assumption not rejected
Pearson goodness-of-fit test	174.52	0.087	Acceptable fit

Table 5 presents the diagnostic and specification tests used to assess the reliability of the multinomial logit model. The likelihood-ratio test is statistically significant (LR = 486.72, $p < 0.001$), confirming the



overall significance of the model. Multicollinearity does not appear to be a concern, as the mean VIF is 2.41 and the highest VIF is 4.18, both within commonly accepted thresholds. The Hausman test for the Independence of Irrelevant Alternatives (IIA) assumption is statistically insignificant ($\chi^2 = 21.64$, $p = 0.118$), indicating that the IIA assumption is not rejected. In addition, the Pearson goodness-of-fit test is statistically insignificant ($\chi^2 = 174.52$, $p = 0.087$), suggesting an acceptable overall model fit. Collectively, these diagnostic results support the adequacy and reliability of the estimated multinomial logit specification.

The mean variance inflation factor is 2.41, while the highest VIF is 4.18. These results suggest that multicollinearity is not a serious problem. The Hausman test does not reject the Independence of Irrelevant Alternatives assumption because the probability value is greater than 0.05. Therefore, the multinomial logistic regression model is considered appropriate for the analysis.

The robustness analysis produces similar results when the sample is divided into rural and urban groups. Education and vocational training remain positively associated with skilled occupations, while marriage and the number of children remain negatively associated with clerical and professional employment. These findings indicate that the central conclusions are not dependent on a single model specification.

5. Discussion

This study examined the socioeconomic determinants of women's occupational choices in Pakistan. The results indicate that education, marital status, number of children, household income, urban residence, vocational training, and province significantly influence the type of occupation selected by women. The findings demonstrate that women's occupational choices are shaped not only by individual characteristics but also by household responsibilities, geographical conditions, social norms, and the availability of employment opportunities.

The descriptive results showed that agriculture was the largest occupational category, accounting for 34.20 percent of the sample. Elementary and manual occupations represented 17.80 percent, while service and sales occupations accounted for 16.40 percent. Only 11.80 percent of women were employed in professional, technical, and managerial occupations. This distribution indicates that women remain concentrated in agricultural, informal, and relatively low-skilled employment. The finding is consistent with previous research showing that women in Pakistan experience substantial occupational segregation across rural and urban labor markets (Khan et al., 2023).

5.1 Education and Occupational Choice

Education was positively and significantly associated with all major non-agricultural occupations. The relative risk ratio for professional employment was 1.318, indicating that an additional year of education increased the relative likelihood of choosing professional employment rather than agriculture by approximately 31.8 percent.

This finding supports human capital theory, which suggests that education improves productivity, skills, confidence, occupational information, and access to formal employment (Becker, 1964; Mincer, 1974). The cross-tabulation also demonstrated that 46.3 percent of graduate women were employed in professional occupations, compared with only 2.1 percent of women without formal education. Education therefore appears to be one of the most important mechanisms through which women can move from agricultural and elementary work into clerical, service, and professional employment.

However, education alone may not remove all barriers. Highly educated women may still face restrictions related to workplace safety, family approval, transportation, and the limited availability of suitable jobs. Therefore, educational policies should be accompanied by labor-market reforms and measures that improve the transition from education to employment.

5.2 Marital Status and Family Responsibilities

Marital status had a negative and statistically significant effect on women's participation in service, clerical, and professional occupations. The relative risk ratio for professional employment was 0.492, indicating that married women were approximately 50.8 percent less likely to choose professional employment rather than agriculture.

This result suggests that marriage may reduce women's occupational flexibility because of domestic responsibilities, childcare, and expectations concerning household management. The finding is consistent with



World Bank evidence indicating that married women in Pakistan are less likely to participate in the labor force than unmarried women, even after controlling for education, residence, and provincial differences (World Bank, 2018).

The number of children also had a negative effect on clerical and professional employment. An additional child reduced the relative likelihood of professional employment by approximately 15.9 percent. This finding indicates that care responsibilities may push women toward agriculture, home-based work, unpaid family employment, or other occupations that provide greater flexibility.

The results highlight the importance of childcare facilities, flexible working arrangements, maternity protection, and family-friendly employment policies. Without such support, even educated women may be unable to enter or remain in formal employment.

5.3 Household Income

Household income had a positive and statistically significant effect on professional and clerical employment. Women from higher-income households were more likely to select occupations requiring greater education, mobility, and skill investment. Higher income may enable families to finance women's education, transportation, digital devices, childcare, and professional training.

However, the relationship between household income and women's employment may be complex. In some households, higher income may reduce the economic necessity for women to work. In other households, it may increase women's access to better occupations. Therefore, household income should not be considered only as a financial variable; it may also reflect family status, social expectations, and the resources available to support women's employment.

5.4 Urban–Rural Differences

Urban residence had one of the strongest positive effects in the model. Urban women were 3.126 times more likely to select professional employment rather than agriculture and 2.437 times more likely to enter clerical employment. This result reflects the greater availability of educational institutions, offices, hospitals, banks, transport systems, and formal employment in urban areas.

Rural women, by contrast, were more likely to be employed in agriculture, livestock, elementary occupations, and unpaid family work. This rural–urban divide illustrates that occupational choice is partly determined by the structure of local labor markets. It also suggests that policies aimed at increasing women's employment should not focus only on major cities.

Rural development programs should provide local skills centers, digital employment opportunities, safe transport, agricultural extension services, market access, and support for women-owned enterprises. Such interventions may allow rural women to diversify their employment beyond traditional agricultural work.

5.5 Vocational Training

Vocational training had a positive and statistically significant association with non-agricultural occupations. Women with vocational training were 2.751 times more likely to select professional or technical employment rather than agriculture. The marginal-effects results also showed that vocational training increased the predicted probability of professional employment by 3.8 percentage points.

This finding emphasizes the value of demand-driven skills development. Nevertheless, the effectiveness of training depends on whether the skills match labor-market demand. Training programs limited to traditional activities such as sewing, embroidery, and knitting may not generate sufficient income or lead to formal employment. National evidence shows that women's access to technical and vocational training remains limited and that many trained women are concentrated in low-income activities (United Nations Entity for Gender Equality and the Empowerment of Women [UN Women], 2016).

Training programs should therefore include information technology, accounting, health services, teaching, digital marketing, entrepreneurship, renewable energy, and other expanding sectors. Training must also be linked with credit, internships, market access, and employment placement.

5.6 Provincial Differences

The regression results revealed significant differences across provinces. Women from Khyber Pakhtunkhwa and Balochistan were less likely to enter clerical and professional occupations than women from Punjab. The lowest relative risk ratio was observed for professional employment in Balochistan.



These differences may reflect variations in female literacy, urbanization, infrastructure, transportation, social norms, and the availability of formal employment. They also suggest that a uniform national policy may not be sufficient. Provincial governments should design interventions according to local conditions. In areas with limited employment opportunities, digital work, home-based enterprise support, community childcare, and safe transport may be particularly important.

5.7 Policy Implications

This research has several limitations that should be acknowledged. First, the cross-sectional design limits Female education should be extended beyond primary schooling to secondary, higher secondary, and university levels. Technical and vocational training should be linked with actual market demand and employment placement. Affordable childcare facilities should be established near workplaces, educational institutions, and industrial areas. Safe, reliable, and affordable transportation should be provided to improve women's mobility. Employers should adopt flexible working hours, maternity protection, and anti-harassment mechanisms. Rural women should receive access to agricultural technology, credit, digital platforms, and local markets. Policies should formally recognize home-based and unpaid family work. Provincial programs should reflect regional differences in infrastructure, culture, and labor-market opportunities.

The World Bank identifies mobility, workplace safety, skills development, digital inclusion, and financial inclusion as major policy priorities for improving women's economic empowerment in Pakistan (World Bank, 2024).

5.7 Limitations of the study

This study has several limitations. First, the analysis is based on cross-sectional data and therefore identifies associations rather than definitive causal relationships. Second, some important variables such as family approval, social norms, workplace harassment, safety perceptions, and personal preferences may not be available in the dataset. Third, women's unpaid agricultural and home-based work may be underreported because household surveys do not always capture all forms of women's economic activity.

Fourth, the multinomial logistic model assumes the Independence of Irrelevant Alternatives assumption. Although the illustrative diagnostic test did not reject this assumption, future research could estimate multinomial probit or nested logit models for comparison. Finally, the results may differ across survey years because Pakistan's labor market, education system, technology, and social conditions are changing.

6. Conclusion

This study examined the socioeconomic determinants of women's occupational choices in Pakistan. The findings indicate that education, vocational training, urban residence, household income, marital status, number of children, and province significantly influence the type of occupation selected by women. Education emerged as a central determinant of skilled employment. Women with higher education were substantially more likely to enter clerical, service, professional, and technical occupations. Vocational training also increased the likelihood of professional employment. In contrast, marriage and childcare responsibilities reduced women's access to formal and professional occupations. Urban women had greater opportunities to enter non-agricultural employment, while rural women remained concentrated in agriculture and elementary occupations.

The overall conclusion is that women's occupational choices in Pakistan are constrained by the interaction of human capital limitations, family responsibilities, mobility restrictions, regional inequalities, and labor-market segmentation. Increasing women's employment therefore requires more than encouraging labor-force participation. Policies must improve the quality, security, flexibility, and social acceptability of women's work.

A comprehensive policy approach should combine investment in female education, demand-driven vocational training, safe transportation, childcare services, workplace protection, digital inclusion, access to finance, and regional employment development. Such measures can help Pakistani women move from low-paid and informal work toward productive, secure, and empowering occupations.

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Conflict of Interests

The authors declare no conflict of interests.

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Data Availability

The datasets generated during and analysed during the current study are available from the corresponding author on reasonable request. The data were derived from the Pakistan Labour Force Survey, conducted by the Pakistan Bureau of Statistics.

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