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A Data-Driven Analysis of Women's Empowerment and Development: Application of Python and Power BI

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Abstract

Empowerment has numerous dimensions: education, paid work, economic resources, control over earnings, household decision-making and the sharing of unpaid care. This study explores selected aspects of women's empowerment and development in Pakistan using two official national surveys: the Labor Force Survey (LFS) 2024–25, which covers labor-force participation, unemployment, employment status, wages and unpaid domestic and care work, and the Demographic and Health Survey (PDHS) 2017–18, which augments evidence on women's employment, control over earnings, asset ownership and role in household decisions. Because the surveys differ in year, respondents and measurement, they are analyzed separately. The design is descriptive and associational: Python supports reproducible analysis, and Power BI presents the verified indicators. The findings underline the need for decent employment, education, regional inclusion, significant control over economic resources and a fairer share of unpaid care.

Keywords: Women's Empowerment; Education; Labor Force Participation; Household Decision-Making; Unpaid Care Work; Python; Power BI; Data Analysis; Gender Inequality

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Introduction

Background of the study

Women's empowerment is both a development objective and a means through which societies can enhance wellbeing, productivity and inclusive progress. It is not adequately represented by a single indicator. Educational attainment can expand knowledge and capabilities; access to decent employment and earnings can strengthen economic resources; and participation in household decisions, control over assets and freedom of movement assists. These factors interact, but improvement in one domain does not certainly produce progress in another.

In Pakistan, gendered outcomes are affected by interacting economic, institutional, geographic and social conditions. Education access and accomplishment, the availability and quality of jobs, professional segregation, informality, safety and mobility constraints, access to finance and digital services, and the unequal distribution of unpaid domestic and care work influence women's opportunities. Differences across provinces, districts, rural and urban settings, age groups and household economic circumstances make national averages insufficient to comprehend the distribution of empowerment.

Official statistical sources provide an opportunity to analyze these issues from complementary perspectives. The PBS LFS 2024–25 offers labor-market information and was released under the 19th ICLS framework, which is important for Illustrating labor-force concepts and evaluating estimates over time. The PDHS 2017–18 take in women's questionnaire measures relevant to education, work, earnings decisions, household decision-making and asset ownership. The PBS Compendium on Gender Statistics 2026 provides an extensive statistical context across population, education, health, employment and leadership.

Statement of the problem

Despite policy attention to gender equality, women in Pakistan experience overlapping disadvantages in educational opportunity, labor-market access, job quality, control over

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income. Aggregate indicators can conceal variations by province, residence, age, education and household circumstances. A further challenge is that empowerment is often assessed through segregated indicators or different data sources without evidently documenting their distinct populations, years and measurement rules. There is therefore a need for a transparent, reproducible analysis that brings together compatible indicators while maintaining the integrity of each survey.

Aim of the study

The purpose is to assess selected dimensions of women's empowerment and development in Pakistan employing official secondary survey data, reproducible Python-based analysis and interactive Power BI visualization.

Research objectives

- To describe women's educational characteristics and, where comparable data are available, evaluate gender differences in education-related indicators.
- To estimate women's labor-force participation, employment and unemployment outcomes using the PBS LFS 2024–25 definitions.
- To examine women's work characteristics, including occupation, industry, hours, earnings and unpaid domestic or care work where determined.
- To assess women's participation in selected household decisions, control over earnings and asset possession using PDHS 2017–18.
- To compare selected indicators by province or region and by urban–rural residence where sample size and survey design facilitate.

Hypotheses

- H1: Women's labor-market outcomes diverge significantly across provinces in the PBS LFS 2024–25.
- H2: Women's labor-market outcomes deviate between urban and rural areas in the PBS LFS 2024–25.
- H3: In the PDHS 2017–18 eligible women's sample, educational attainment is positively coupled with participation in at least one selected household decision.
- H4: Women reported decision-making participation varies by household wealth category and region in the PDHS 2017–18.
- H5: Women's work status is associated with reported control over earnings or selected household decision-making.

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Significance of the study

The study contributes to policy analysis by identifying where selected gender gaps are concentrated and which dimensions require allocated investigation. For government departments and development organizations, province- and residence-specific evidence can help guide education, skills, employment, childcare, social protection and financial-inclusion initiatives. For researchers, this study demonstrates how to unite official survey documentation, survey-aware statistical analysis, reproducible code and transparent visual communication. For a data analytics, it exhibits a comprehensive workflow from research questions and data governance to Python, SQL, Power BI and interpretation.

Literature Review and Theoretical Framework

Empowerment is generally understood as a process through which people who have been denied the ability to make strategic life choices acquire the capacity to do so. For this study, empowerment is considered as a multidimensional construct rather than a single index. Education and digital access are capability-related resources; employment, earnings and assets are economic resources and outcomes; and participation in household decisions is an observable but partial measure of autonomy.

Maqsood et al. (2024) investigates the intersection of women's market and non-market work and the conditions shaping decent economic participation in Pakistan. Their framing highlights the significance of analyzing unpaid and paid work together rather than treating labor-market status as a absolute measure of economic autonomy. Zulfiqar et al. (2024) use an ecological-systems method to investigate labor-force participation among tertiary-educated Pakistani women, drawing attention to impacts at multiple levels rather than relying on individual characteristics alone.

An article published in 2026 by Habib, Rukash and Awan examines unpaid care work and women's labor-force participation. It reports that estimated relationships vary with modelling strategy and argues the role of flexible and home-based work.

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Majid, Mustafa and Nazar (2025), identify financial and time constraints, privacy and trust concerns, gendered power dynamics and poor infrastructure as barriers to women's digital participation in Pakistan. The findings imply that digital inclusion should be assessed in terms of affordability, safety, skills, control and meaningful use, not connectivity alone.

A secondary analysis of the PDHS 2017–18 and 2012–13 datasets published in 2021 show decision-making and attitudes towards wife-thrashing. It reported variation by region, wealth, education and media exposure, and found that asset ownership was exceptional in the analyzed sample.

Heaton, Kashif and Mukhopadhaya (2024) study unconditional cash transfers and women's empowerment in Pakistan using data from Benazir Income Support Program impact evaluation. They conceptualize empowerment across self, familial and economic choice dimensions. Sarfraz (2026) presents a qualitative evaluation of cash-transfer program and women's empowerment, focusing on household decision-making and gendered expectations. Concurrently, these studies reinforce the need to distinguish receipt of resources from autonomy over their use.

Research gap

Recent literature has extended discussion of unpaid care work, digital inclusion, cash transfers and women's labor-market participation in Pakistan. This study displays reproducible Python processing and a Power BI interface that makes source-specific results accessible to policy and non-technical audiences.

Conceptual framework

The study organizes indicators into three allied domains: (1) capabilities and resources—education, skills and digital access; (2) economic participation and resources—labor-force status, employment characteristics, earnings, assets and unpaid work; and (3) autonomy and achievements—involvement in selected household decisions and control over earnings. Province, urban–rural residence, age, marital status and household wealth

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are treated as contextual or explanatory characteristics where available. Because the surveys are separate, the framework is implemented within each source rather than by record-level linkage between LFS and PDHS.

Research Methodology

Research design

The study adopts a quantitative, observational, secondary-data design. It is descriptive and associational rather than experimental. The LFS 2024–25 and PDHS 2017–18 is analyzed independently. The design uses weighted estimates for population inference where the survey documentation supports them, and unweighted sample counts are described alongside weighted percentages to make the denominator transparent.

Data sources

Source	Reference period / population	Used in this study
PBS Labor Force Survey	2024–25; household-based labor-market survey population as defined by PBS	Labor-force status, employment, occupation, industry, earnings/hours and unpaid work where measured
Pakistan Demographic and Health Survey	2017–18; women's questionnaire for eligible ever-married women aged 15–49	Education, current work, earnings decision-making, household decisions and asset ownership
PBS Compendium on Gender Statistics	2026 publication; source years vary by indicator	Contextual published indicators and triangulation

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Variable description

PBS LFS 2024–25

Indicator	**Required source variables / concepts**	**Operational definition / calculation**
Female labor-force participation rate (FLFPR)	Sex; age; labor-force status; survey weight; PSU; strata	Weighted women in labor force / weighted eligible female population × 100
Male labor-force participation rate	Same fields, male records	Weighted men in labor force / weighted eligible male population × 100
Employment-to-population ratio	Sex; age; employment status; weight; design variables	Weighted employed population / weighted eligible population × 100
Unemployment rate	Sex; age; employment status; seeking/availability components as defined by LFS; weight	Weighted unemployed / weighted labor force × 100
Status in employment	Sex; employment status/class of worker; weight	Weighted distribution by employee, employer, own-account worker, contributing family worker or official categories
Industry and occupation	Sex; industry code; occupation code; employment status; weight	Weighted distribution of employed women by industry and occupation

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Earnings / wage outcomes	Sex; wage/salary or earnings fields; reference period; hours; weight	Weighted median/mean or quantiles among the eligible paid-worker universe
Working time	Sex; hours worked/usual hours; reference period; weight	Weighted mean/median hours and distribution by hours bands
Unpaid domestic/care work	Sex; activity/time-use items or work classification fields; age; weight	Share reporting activity and/or time spent, as permitted by questionnaire
Urban–rural and provincial gaps	Sex; province; district; area; indicator fields; weight; PSU; strata	Source-specific weighted estimates by geography

PDHS 2017–18

Empowerment indicator	**Candidate DHS variable(s)**	**Use / construction**
Respondent age	V012	Age in completed years; stratification or adjustment
Women's sample weight	V005	Divide by 1,000,000 for standard DHS weight scaling
Cluster / PSU	V021	Primary sampling unit for complex-survey variance

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Strata	V022	Sampling strata for variance estimation
Region / province	V024	Regional domain comparison
Urban / rural	V025	Residence comparison
Education	V106; V133	Highest educational level; years of education if available
Literacy	V155	Literacy status
Currently working	V714	Current work status
Occupation	V716	Occupation classification
Type of employer	V719	Employer type / employment context
Worked in last 12 months	V731	Recent work participation
Decision on respondent's earnings	V739	Who decides how respondent's cash earnings are used
Healthcare decision	V743A	Who usually decides on respondent's healthcare
Large household purchases	V743B	Who decides on large household purchases
Daily household purchases	V743C	Who decides on daily household purchases
Visits to family / relatives	V743D	Who decides on visits to family or relatives
House ownership	V745A	Whether respondent owns a house alone or jointly
Land ownership	V745B	Whether respondent owns land alone or jointly

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Mobile phone ownership	V169A	Personal mobile ownership
Mobile financial transactions	V169B	Use of mobile for financial transactions
Bank account	V170	Respondent has bank account
Internet use	V171A	Recent internet use

Analytical procedures

The analysis is proceeded in phases. First, weighted descriptive estimates sum up each indicator. Second, cross-tabulations compare results by province, residence, age group, education and wealth where available. Third, gender gaps are computed for comparable LFS outcomes. Fourth, bivariate and multivariable models assess associations in the PDHS, such as the relationship between education and decision-making participation.

Software and reproducibility

Python is used for dataset inspection, cleaning, weighted summaries and statistical modelling using suitable survey-analysis libraries. SQL is used to query cleaned, de-identified analytical tables. Power BI is used for presentation, with source, year, denominator and definition embedded in tooltips. The project repository includes a README, environment requirements, data dictionary, code notebooks, SQL scripts, dashboard screenshots and a log of transformations.

Empirical Analysis and Outcomes

Introduction

This chapter presents a descriptive analysis of women's empowerment in Pakistan using published findings from the Pakistan Bureau of Statistics (PBS) Labor Force Survey 2024–25 and the National Institute of Population Studies/ICF Pakistan Demographic and Health Survey 2017–18. The LFS is used to analyze labor-force participation, unemployment, provincial and urban–rural differences, employment status, wages,

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education among employed people and unpaid domestic and care work. The PDHS provides complementary published facts on women's employment, control over earnings, asset possession and household decision-making. The surveys are analyzed discretely because their reference periods, populations and instruments differ.

Survey coverage and denominator notes

PBS finds 54,832 households as the designed sample, drawn from 3,796 primary sampling units, and indicates 53,974 households enumerated with a 99.5% response rate. The survey covers the four provinces and delivers national and provincial estimates with urban–rural breakdowns (PBS, 2025).

The PDHS 2017–18 national sample comprised 12,364 ever-married women aged 15–49, excluding Azad Jammu and Kashmir and Gilgit-Baltistan from the national total; those areas are reported separately. Published PDHS estimates are weighted, and item denominators differ by eligibility and valid response.

National labor-force participation and gender variations

Under the 19th ICLS framework, the refined labor-force participation rate (LFPR) was 46.3% nationally: 68.7% for men and 22.7% for women. The female–male difference was 46.0 percentage points. Under the 13th ICLS framework, the corresponding rates were 69.8% for men and 24.4% for women, a 45.4-point gap. LFPR is the labor force (employed plus unemployed) divided by the relevant working-age population; it is not the employment rate.

Table 4.1. Labor-force participation rate by sex, Pakistan, 2024–25

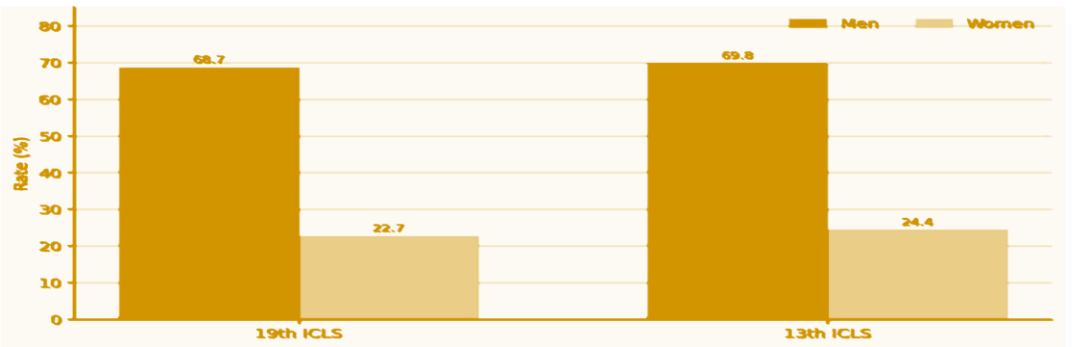
Framework	Men (%)	Women (%)	Gender gap
19th ICLS	68.7	22.7	46.0
13th ICLS	69.8	24.4	45.4

Source: PBS (2025), LFS 2024–25, Population aged 10 years and over.

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Figure 4.1. Labor-force participation rate by sex



Source: PBS (2025), Labor Force Survey 2024–25. Population aged 10 years and over.

4.4 Provincial and urban–rural differences

For provincial and residence comparisons, the 13th ICLS series provides the published province-by-sex breakdown and is also the framework PBS uses for comparison with the 2020–21 survey. Punjab had the uppermost female LFPR (29.8%), while Baluchistan had the lowest (13.6%). Sindh and Khyber Pakhtunkhwa recorded 18.1% and 18.6%, respectively. The provincial range was 16.2 percentage points.

Table 4.2. Labor-force participation by province and sex, 2024–25

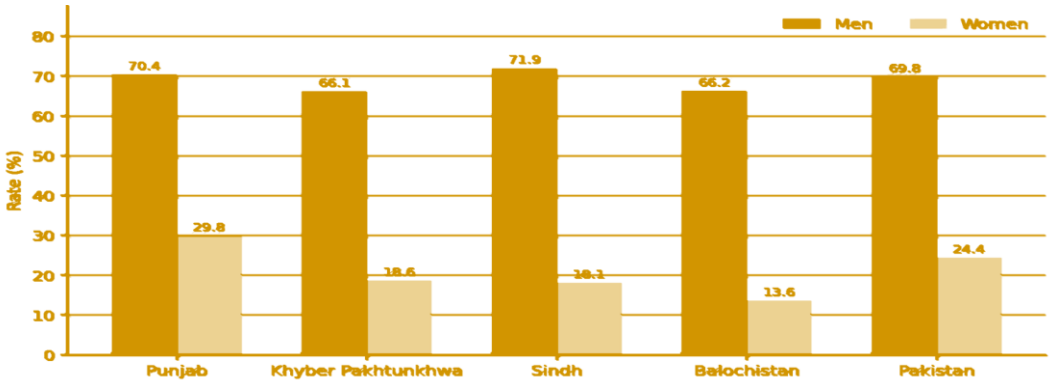
Province	Men (%)	Women (%)	Gender gap (pp)
Punjab	70.4	29.8	40.6
Khyber Pakhtunkhwa	66.1	18.6	47.5
Sindh	71.9	18.1	53.8
Baluchistan	66.2	13.6	52.6
Pakistan	69.8	24.4	45.4

Source: PBS (2025), LFS 2024–25. Gender gaps calculated from published rates.

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Figure 4.2. Refined labor-force participation rate by province and sex



Source: PBS (2025), LFS 2024–25

The female LFPR was 31.7% in rural areas and 13.5% in urban areas under the 13th ICLS framework, a rural–urban difference of 18.2 percentage points. The male rates were 72.1% and 66.4%, respectively. The gender gap was therefore 40.4 points in rural areas and 52.9 points in urban areas.

Table 4.3. Refined labor-force participation by area and sex, 2024–25 (13th ICLS)

Area	Men (%)	Women (%)	Gender gap (pp)
Rural	72.1	31.7	40.4
Urban	66.4	13.5	52.9
Pakistan	69.8	24.4	45.4

Source: PBS (2025), LFS 2024–25

Rural participation does not necessarily indicate higher job quality or independent earnings; rural work includes agricultural and family-based activity. Within provinces, rural female participation was 39.5% in Punjab and 29.6% in Sindh, compared with 15.9% and 9.3% in their urban areas. In Khyber Pakhtunkhwa the corresponding rates were 19.2% and 15.6%; in Baluchistan, 15.9% and 8.5%. The rural–urban variation is largest in Punjab (23.6 points) and Sindh (20.3 points).

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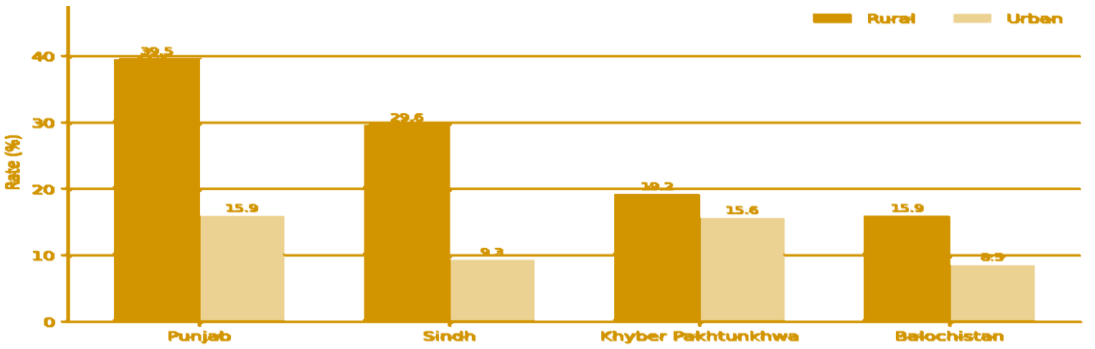
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Table 4.4. Female labor-force participation by province and area, 2024–25

Province	Rural women (%)	Urban women (%)	Difference (pp)
Punjab	39.5	15.9	23.6
Sindh	29.6	9.3	20.3
Khyber Pakhtunkhwa	19.2	15.6	3.6
Baluchistan	15.9	8.5	7.4

Source: PBS (2025), LFS 2024–25

Figure 4.3. Female refined labor-force participation by province and area



Source: PBS (2025), LFS 2024–25. Province-by-area female estimates.

Unemployment and access to jobs

Under the 19th ICLS framework, the national unemployment rate was 7.1%, comprising 10.5% for women and 6.0% for men. Female unemployment surpassed male unemployment in all four provinces. Khyber Pakhtunkhwa recorded the highest female unemployment rate (18.1%), followed by Punjab (9.6%), Sindh (8.7%) and Baluchistan (8.4%).

Table 4.5. Unemployment rate by province and sex, 2024–25 (19th ICLS)

Province	Total (%)	Men (%)	Women (%)
Pakistan	7.1	6.0	10.5
Khyber	9.6	7.5	18.1

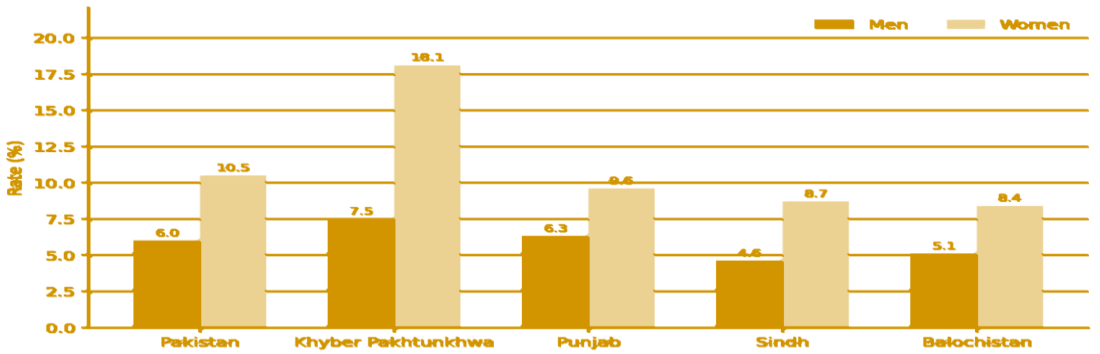
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Pakhtunkhwa			
Punjab	7.3	6.3	9.6
Sindh	5.3	4.6	8.7
Baluchistan	5.5	5.1	8.4

Source: PBS (2025), LFS 2024–25

Figure 4.4. Unemployment rate by province and sex



Source: PBS (2025), LFS 2024–25, 19th ICLS framework.

The 13th ICLS urban–rural table reports female unemployment of 17.3% in urban areas and 7.6% in rural areas. The urban female rate is 9.7 percentage points higher. This is interpreted alongside the lower urban female participation rate: among women who enter the urban labor force, a larger share is unemployed, while many other women remain outside the labor force.

Table 4.6. Unemployment rate by area and sex, 2024–25

Area	**Men (%)**	**Women (%)**	**Total (%)**
Rural	5.7	7.6	6.3
Urban	6.3	17.3	8.0
Pakistan	5.9	9.7	6.9

Source: PBS (2025), LFS 2024–25,

Under the 19th ICLS framework, female unemployment was 14.0% among women aged 15–24 and 14.9% among women aged 25–34.

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Employment status and job quality

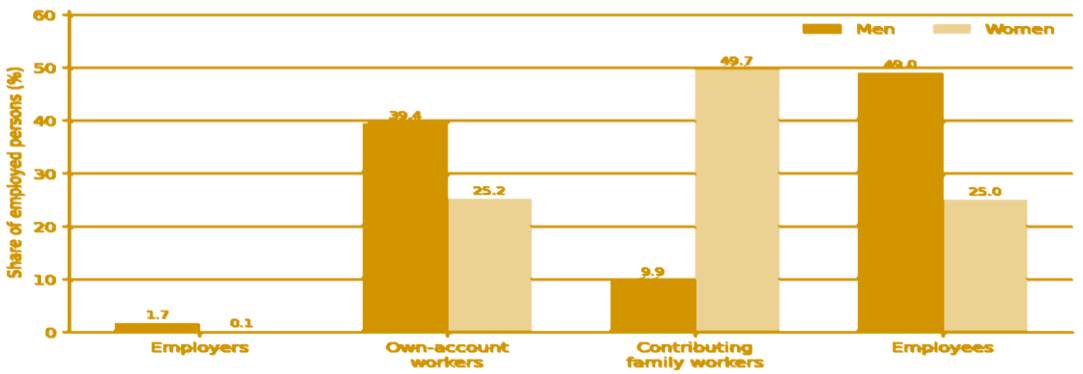
In 2024–25, 49.7% of employed women were contributing family workers, compared with 9.9% of employed men. Only 25.0% of employed women were employees, compared with 49.0% of employed men. Women were less likely to be own-account workers (25.2% versus 39.4%) and depicted only 0.1% of employers.

Table 4.7. Division of employed persons by employment status and sex, 2024–25

Employment status	Men (%)	Women (%)
Employers	1.7	0.1
Own-account workers	39.4	25.2
Contributing family workers	9.9	49.7
Employees	49.0	25.0

Source: PBS (2025), LFS 2024–25, Percentages are within each sex's employed population.

Figure 4.5. Employment status distribution by sex



Source: PBS (2025), LFS 2024–25. Percentages are within each sex's employed population.

The high share of women in contributing family work reveals that women's measured employment is often organized within family enterprises or family production. This category does not necessarily mean that no income is received, but it does not assure the

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independent wage receipt linked with employee work. The distribution therefore matters when assessing independent earnings and economic autonomy.

Education amongst employed persons

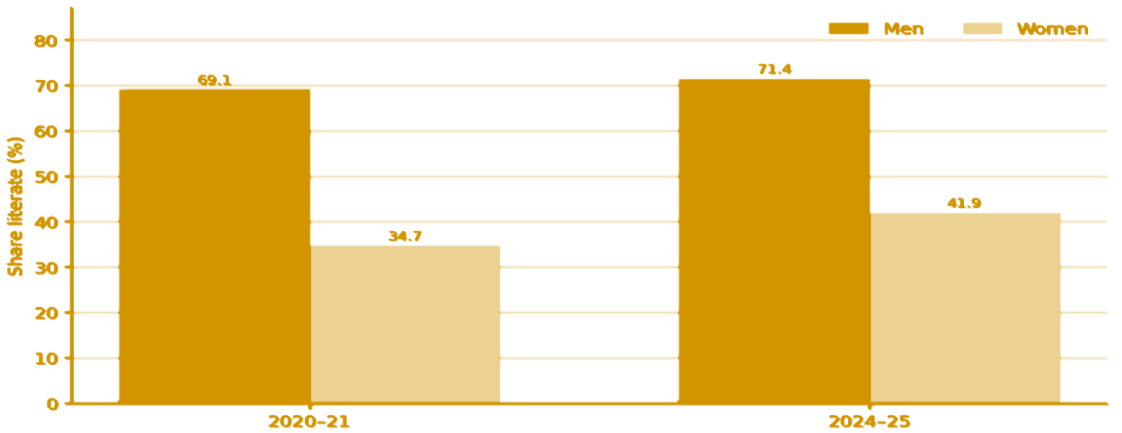
Literacy among employed women risen from 34.7% in 2020–21 to 41.9% in 2024–25, a rise of 7.2 percentage points. The corresponding male rate increased from 69.1% to 71.4%, or 2.3 points. The 2024–25 literacy gap among employed persons remained 29.5 percentage points.

Table 4.8. Literacy among employed persons by sex, 2020–21 and 2024–25

Sex	2020–21 (%)	2024–25 (%)	Change (pp)
Men	69.1	71.4	2.3
Women	34.7	41.9	7.2
Total	61.2	64.3	3.1

Source: PBS (2025), LFS 2024–25, These estimates describe employed people, not all women or men.

Figure 4.6. Literacy among employed persons by sex



Source: PBS (2025), LFS 2024–25.

Amid employed women, 54.3% had no formal education, compared with 26.7% of employed men. Degree-and-above education reported for 7.9% of employed women and

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9.1% of employed men. These are education distributions among employed people; they do not estimate the probability of employment at each education level.

Wages amongst paid employees

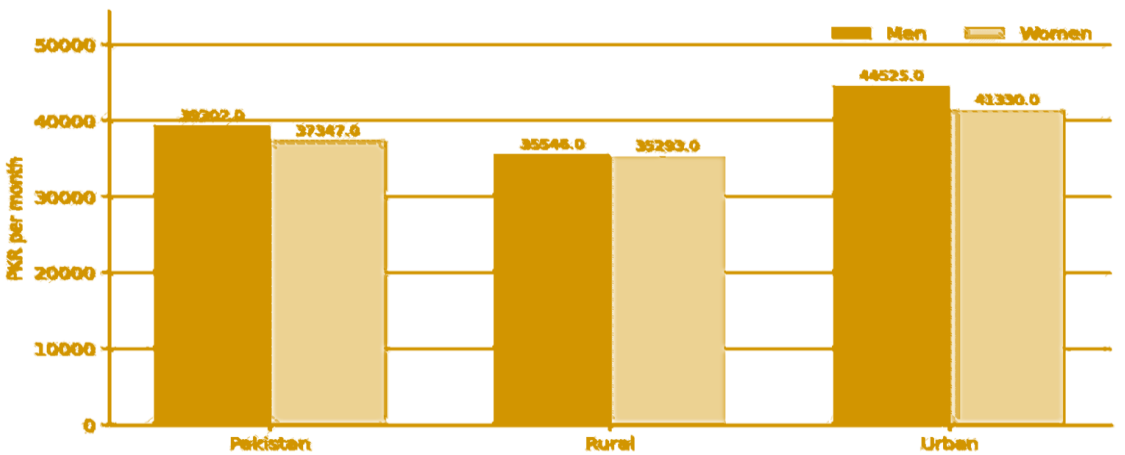
The mean monthly wage of paid employees in their main job was PKR 39,302 for men and PKR 37,347 for women. The difference was PKR 1,955, approximately 5.0% of the male mean. Median wages were PKR 33,600 for men and PKR 30,000 for women, a difference of PKR 3,600 (approximately 10.7% of the male median). These estimates apply to paid employees, not all employed women.

Table 4.9. Monthly wages of paid employees by sex and area, 2024–25 (PKR)

Area	Men mean	Women mean	Men median	Women median
Pakistan	39,302	37,347	33,600	30,000
Rural	35,546	35,293	30,000	28,000
Urban	44,525	41,330	37,250	35,000

Source: PBS (2025), LFS 2024–25, Wages are monthly PKR for paid employees in the main job.

Figure 4.7. Mean monthly wages of paid employees by sex and area



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Source: PBS (2025), LFS 2024–25, Mean monthly wages among paid employees; unadjusted.

Urban mean wages were higher than rural mean wages for both sexes. Among women, the urban mean was PKR 41,330 compared with PKR 35,293 in rural areas.

Unpaid domestic and care work

PBS estimates that 117.4 million people were engaged in unpaid domestic and care work in 2024–25: 66.7 million women and 50.7 million men. The report estimates that 77.1% of women and 55.0% of men in the working-age population undertook unpaid domestic and care work. The number of women engaged was highest in Punjab (36.5 million), followed by Sindh (15.3 million), Khyber Pakhtunkhwa (11.6 million) and Baluchistan (3.3 million.

Table 4.10. Persons engaged in unpaid domestic and care work by province and sex (millions)

Province	Men (m)	Women (m)	Total (m)
Punjab	26.1	36.5	62.6
Sindh	12.7	15.3	28.0
Khyber Pakhtunkhwa	9.4	11.6	21.0
Baluchistan	2.5	3.3	5.8
Pakistan	50.7	66.7	117.4

Source: PBS (2025), LFS 2024–25

The significant gender difference appears in cooking, cleaning, washing and related household chores: 59.7% of women were involved, compared with 6.7% of men. Women involved in these activities spent an average of 15.3 hours per week, compared with 6.8 hours for men. Care work involved 31.1% of women and 14.6% of men, with average weekly hours of 7.5 and 5.6, respectively. Livestock operations contained 24.8% of

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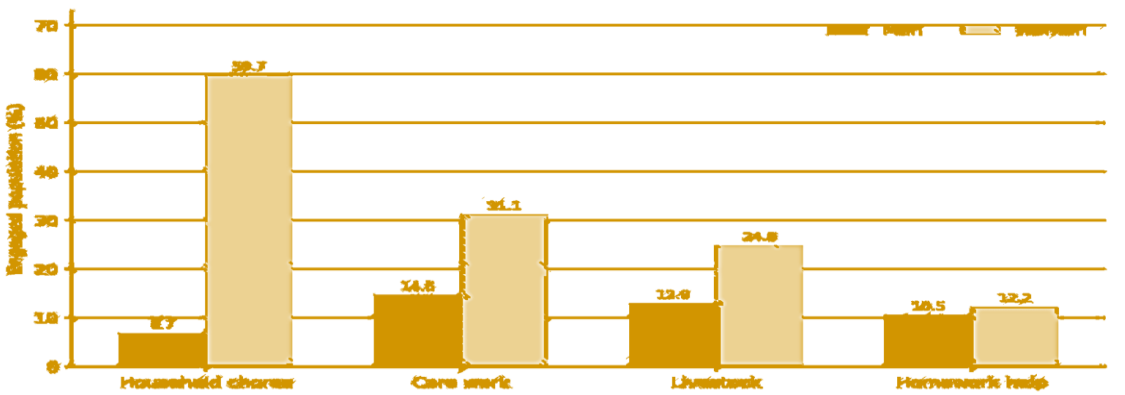
women and 12.9% of men; women spent 10.1 hours weekly compared with 7.6 hours for men.

Table 4.11. Selected unpaid activities: mean hours per week, 2024–25

Activity	Men engaged (%)	Women engaged (%)	Men hours	Women hours
Cooking, cleaning and household chores	6.7	59.7	6.8	15.3
Care for children, ill or older persons	14.6	31.1	5.6	7.5
Livestock operations	12.9	24.8	7.6	10.1
Helping children with homework	10.5	12.2	7.6	8.7

Source: PBS (2025), LFS 2024–25.

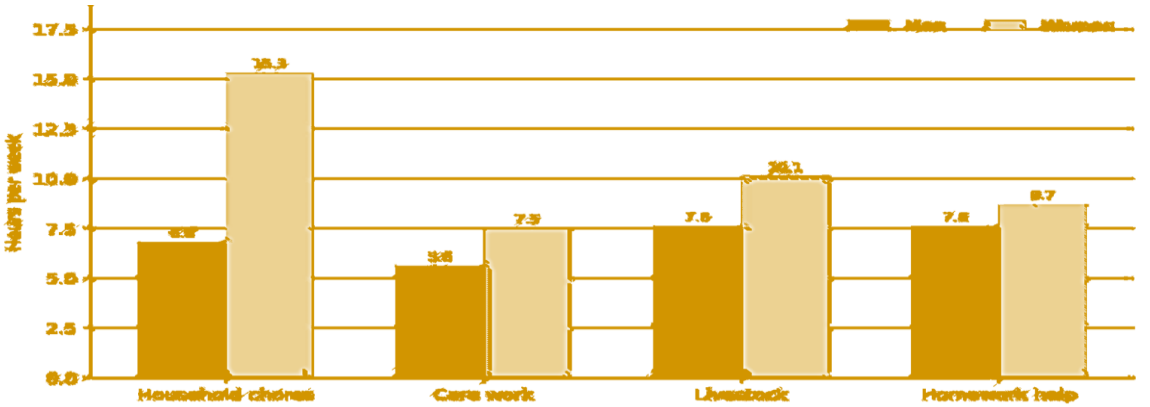
Figure 4.8. Participation in selected unpaid activities by sex



Source: PBS (2025), LFS 2024–25. Sex-specific population denominators.

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Figure 4.9. Mean weekly hours in selected unpaid activities by sex



Source: PBS (2025), LFS 2024–25.

These outcomes demonstrate that women's contribution extends beyond paid employment. Unequal unpaid responsibilities may constrain time available for paid work, education, skills development and rest.

Published PDHS evidence on social and household autonomy

The PDHS 2017–18 provides measures not obtained directly by the LFS. Its published report points at that 17% of ever-married women aged 15–49 was currently employed, compared with 96% of ever-married men. Among currently married women with cash earnings, nearly 49% decided independently how their earnings were used and 41% made the decision jointly with their husband.

Table 4.12. Selected published PDHS 2017–18 indicators of women's autonomy

Indicator	Estimate	Population / definition
Currently employed women	17%	Ever-married women aged 15–49; current employment
Decide independently cash earnings	49%	Currently married women with cash earnings
Decide jointly over own cash earnings	41%	Currently married women with cash earnings

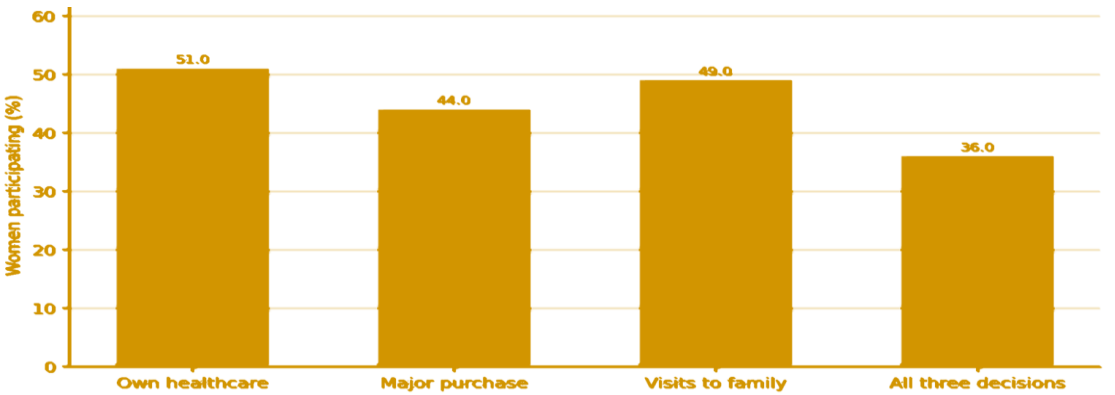
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Participate in own healthcare decision	51%	Currently married women; alone or jointly
Participate in purchase decision	44%	Currently married women; alone or jointly
Participate in visits to family/relatives' decision	49%	Currently married women; alone or jointly
Participate in all specified decisions	36%	Currently married women aged 15–49
Own a house alone or jointly	3%	Ever-married women aged 15–49
Own land alone or jointly	2%	Ever-married women aged 15–49

Source: NIPS and ICF (2019), Pakistan Demographic and Health Survey 2017–18

Figure 4.10. Selected household decision-making indicators (PDHS 2017–18)

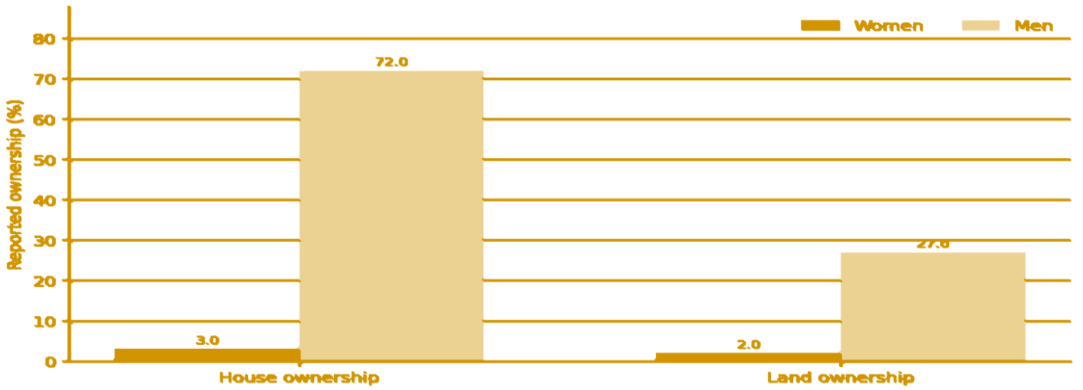


Source: NIPS and ICF (2019), PDHS 2017–18,

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Figure 4.11. Women's and men's reported asset ownership



Source: NIPS and ICF (2019), PDHS 2017–18.

Participation was elevated for decisions about women's own healthcare (51%) and visits to family or relatives (49%), and lower for major household purchases (44%). Only 36% participated in all three specified decisions; 39% participated in none. Reported ownership of houses and land was much lesser among women than men: 3% versus 72% for houses and 2% versus 27% for land.

Chapter conclusion

The published official evidence shows that women's empowerment in Pakistan is formed by labor-market exclusion, geographic disparities, employment-status differences, unequal unpaid care responsibilities and limitations in household autonomy and asset ownership. The outcomes provide a descriptive foundation for the discussion and policy recommendations in the following chapters.

Discussion

Illustrating educational resources and autonomy

Published PDHS results reveal gender gaps in education: approximately half of ever-married women aged 15–49 had no education, compared with one-quarter of men; literacy was 50% among women and 70% among men. Consistent with human-capital and resources–autonomy perspectives, education can strengthen information, skills and decision-making capacity.

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Illustrating labor-market participation and job quality

Under the 19th ICLS framework, LFS female LFPR was 22.7%, compared with 68.7% for men. Among employed women, 49.7% were contributing family workers versus 9.9% of men, and only 25.0% were employees. Participation alone hence cannot measure economic empowerment; job quality, independent earnings, security and income control also matter. PBS wage differences are unadjusted and cannot be characterized discrimination without controlling for relevant worker and job characteristics.

Unpaid care work and economic opportunity

PBS reports unpaid domestic and care work among 66.7 million women and 50.7 million men. Women more often undertook household chores (59.7% versus 6.7%) and care work (31.1% versus 14.6%), spending additional weekly hours on both.

Digital inclusion and financial autonomy

Even though PDHS 2017–18 covers bank-account and mobile-phone ownership, this study's findings focus on employment, earnings control, assets and household decisions. Phone or account access does not establish independent control or significant financial inclusion. Microdata analysis distinguishes individual and joint ownership, account use and transaction authority, while assessing digital inclusion through affordability, skills, privacy and safety.

Regional and residence-based disparities

The LFS shows large regional differences. Under the 13th ICLS framework, female participation ranged from 29.8% in Punjab to 13.6% in Baluchistan, while the rural female rate (31.7%) was above than twice the urban rate (13.5%). These differences may exhibit the distribution of agriculture and family work, access to paid jobs, transport, childcare, education and local labor demand. They are potential explanatory contexts, not mechanisms established by the published aggregate data. The much higher urban female unemployment rate (17.3% under the 13th ICLS table) further shows that participation and access to jobs must be examined together.

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Policy implications

The findings support various policy directions. First, education and skills interventions should address the substantial gender difference in literacy and educational attainment. Second, employment policy should emphasis on decent work and independent earnings, not only participation counts, given the concentration of women in contributing family work. Third, safe transport, childcare and accessible workplaces may benefit address barriers to women's paid work, though their effects require program evaluation. Fourth, care services and social protection should recognize and reduce the unequal burden of unpaid domestic work. Fifth, legal awareness and practical enforcement around inheritance and property rights are significant given the reported asset-ownership gap. Finally, province- and residence-specific program should be intended using appropriately weighted data and local evidence.

Conclusion and Recommendations

Conclusion

This study analyzed selected dimensions of women's empowerment in Pakistan using published official statistics from the PBS LFS 2024–25 and PDHS 2017–18. The LFS shows a large gender gap in labor-force participation, marked provincial and urban–rural differences, higher female unemployment, a concentration of women in contributing family work and a substantial unpaid domestic and care burden. The PDHS adds evidence of limited participation in selected household decisions and much lower reported ownership of houses and land among women than men. The evidence implies that women's empowerment should not be assessed through employment alone. Participation must be considered alongside job quality, earnings, asset ownership, household autonomy and unpaid care responsibilities.

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Recommendations

1. Education: Reinforce girls' retention, completion and transition to secondary and higher education, with attention to provinces and rural communities where access gaps are greatest.
2. Decent work: Develop women's access to safe transport, skills, formal recruitment, fair pay and social protection; monitor the transition from contributing family work into secure paid employment.
3. Care infrastructure: Increase affordable childcare and care services, recognize unpaid domestic and care work, and promote a more equitable distribution of household responsibilities.
4. Financial autonomy: Enhance women's access to bank accounts, savings and digital payments while ensuring that account ownership is accompanied by practical control over transactions and earnings.
5. Digital inclusion: Focus affordability, device access, privacy, online safety, skills and social constraints rather than measuring connectivity alone.
6. Property and legal rights: Increase awareness and enforcement of women's inheritance and property rights, including documentation, registration and access to remedies.
7. Regional targeting: Employ survey-weighted, disaggregated evidence to direct program to underserved regions, while respecting uncertainty and sample-size constraints.

Contribution

The study's feasible contribution is a source-aware and reproducible workflow linking python analysis, official survey documentation, variable definitions, statistical yields and Power BI visualization. Its substantive input is to demonstrate why women's empowerment ought to be evaluated across labor-market participation, job quality, unpaid work, earnings control, asset ownership and household decision-making rather than through a single proxy.

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Appendix A. Python workflow

```
import pandas as pd
file_path = Path("data/raw/your_file.sav")
df, meta = pyreadstat.read_sav(file_path, apply_value_formats=False)
print("Shape:", df.shape)
print("Variables:", df.columns.tolist())
inventory = pd.DataFrame({
"variable": df.columns,
"label": [meta.column_names_to_labels.get(v, "") for v in df.columns],
"dtype": [str(df[v].dtype) for v in df.columns],
"missing_n": [int(df[v].isna().sum()) for v in df.columns],
"unique_n": [int(df[v].nunique(dropna=True)) for v in df.columns],
inventory.to_excel("outputs/variable_inventory.xlsx", index=False)
```

Appendix B. Power BI pages

Page	Purpose	Suggested illustrations
Executive overview	Headline indicators and source navigation	KPI cards, indicator trends, gender gap summary

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Education	Literacy and attainment	Grouped bars, slope chart, provincial matrix
Economic empowerment	Employment and work quality	LFPR cards, occupation/industry bars, earnings distributions
Social empowerment	PDHS household autonomy and assets	Decision-making 100% stacked bars, ownership bars
Regional comparison	Geographic disparities	Map, province ranking, urban–rural small multiples

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