

THE IMPACT OF EDUCATION ON WOMEN'S EMPLOYMENT CHOICES IN PAKISTAN: EVIDENCE FROM THE LABOUR FORCE SURVEY 2020-2021

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ABSTRACT

This study is an attempt to examine the effect of education levels on the employment choices of women in Pakistan. The employment choices include wage employment, self-employment, and family contributing work. This paper makes use of Pakistan Labour Force Survey 2020-2021. The sample size for the females who are currently economically participating in labour is 36,365. The estimates of the Multinomial Logistic regression model bring out the role of education in transforming employment choices for women in Pakistan. Women with higher education are more likely to take up wage employment, whose probabilities increase from 15.6% for the uneducated to 86.9% for higher education. A women with higher education has 8% probability of being self-employed while for uneducated women, it is 18.4%. For the vulnerable employment status, a women with no formal education has 67% probability of family contributing worker, while it slide down to 5% for the higher education women. The findings of the study suggest that higher education reduces the probability of self-employment and family-contributing work, which is more predominant among less-educated women. The findings underpin the fundamental necessity of investment in women's education, which will allow them to enter formal and stable employment, thereby augmenting their ability to contribute more meaningfully to the economy of Pakistan.

Keywords: Women, Employment choice, Wage-employment, Self-employment, Family contributing worker.

INTRODUCTION

The Labour Force Survey (2021) highlights significant gender disparities in Pakistan's workforce (Pakistan Bureau of Statistics, 2021). While the overall labor force participation rate is 44.9%, male participation is 67.9%, compared to only 21.4% for females. Females are underrepresented in leadership roles, with just

0.1% as employers, compared to 1.8% of males. Among 'own account workers,' males dominate at 40.4%, while females account for 19.0%. The most striking disparity is in the 'contributing family workers' category, where 55.9% of females are engaged compared to 10.8% of males. These patterns reveal males dominate formal

employment, while females are largely confined to unpaid or informal roles.

Female labor participation in Pakistan varies significantly across education levels and employment categories, influenced by cultural, economic, and social factors (Shair et al., 2024; Sarwar & Imran, 2019). Education plays a pivotal role, as women with higher education are more likely to secure wage employment, offering financial independence and job security (Hordósy & Clark, 2018). In contrast, women with lower education are often confined to informal or unpaid family-contributing work due to limited skills and societal norms. Self-employment remains an option but faces challenges like restricted mobility and resource access. These trends highlight the transformative role of education and the need for targeted policies to address barriers and enhance participation.

Theoretical literature on occupational choices highlights the factors influencing employment decisions. Roy's (1951) model emphasizes the role of skills and uncertainty in choosing occupations, with success dependent on skill utilization alongside technological resources. Blau (1985) argues that individuals decide between self-employment and wage employment based on 'marginal ability' and utility optimization. Borjas (1986) adds that anticipated net income and opportunity costs guide these decisions, while Hammarstedt (2004) considers factors like tax rates, wages, and start-up costs. Blanchflower and Oswald (1998) and Lianos and Pseiridis (2009) further underscore how economic variables shape choices. Empirical studies explore the influence of migration and remittance inflows on employment preferences. Migration often shifts preferences toward non-wage work or self-employment (Binzel & Assaad, 2011; Khan & Valatheeswaran, 2016). Remittance inflows encourage family-contributing work (Dávalos et al., 2017), self-employment (Mendola & Calogero, 2012), or formal jobs (Stanley, 2014), though Acosta (2020) found no significant link to self-employment. Together, these studies reveal how contextual and economic factors shape occupational choices.

This study examines the impact of education levels on women's employment choices in Pakistan, where 65% of employed women lack formal

education. It explores how education influences wage employment, self-employment, and family-contributing work, uncovering barriers and opportunities women face. The analysis of women's employment choice is important to enhance labour participation of which is a critical factor for the economic growth, social development, and gender equity of a nation. The existing literature in context of women participation is, including Ejaz (2007); Faridi et al (2009); Mujahid (2020); and Shair et al., 2023a; 2023b; 2024). However, in text of employment choice of women, the existing literature is scant. Therefore, this study is an attempt to fill this gap by examining the transformative role of education on different employment choice of women by using the nationally representative dataset. The findings aim to inform policies promoting gender equality, empowering women, and enhancing their economic contribution within Pakistan's unique socio-cultural and economic context.

2. Methodology

The study uses Pakistan Labour Force Survey 2020-2021. The survey is available at the official website of the Pakistan Bureau of Statistics. The number of household in the in the survey was 99,904. However, the sample size for the females who are currently economically participate in labour is 36,365.

In the sample, most of the female reported the association with distinct occupation. Therefore, it can be used to figure out the choice of a specific occupation given the different occupation categories. In this context, we can define our dependent variable comprising the multinomial categories related to employment choice. In the presence of multinomial categories in the dependent variable, Multinomial Logit model can be used. The following equation can be estimated:

$$\begin{aligned}
 & \text{Employment choice}_i \\
 &= \alpha_0 + \alpha_1 EDU_i + \sum_{k=1}^K \beta_k X_{ik} \\
 &+ \varepsilon_i \tag{1}
 \end{aligned}$$

While equation 1 is related to estimate the effect of determinants of the employment choices. The equation 1 will be run by using the Multinomial Logit model. The choice of MLogit model emerges

when dependent variable comprises multinomial categorical variable. Here in the study employment choices comprises the wage-employment, self-employment, and family contributing worker. EDU_i is variable of interest which indicate the education level of individuals. X_{ik} represents the k -th control variable for individual i .

The dependent variable in this study is employment choice, which comprises three categories: wage-employment, self-employment, and family-contributing workers. The key independent variable is education, an ordinal categorical variable with five levels: no formal education, primary, middle, secondary, and higher education. Several covariates are included in the analysis: urban, a dichotomous variable coded as 1 for urban dwellers and 0 otherwise. Marital status, a multinomial categorical variable with three categories: never married, currently married, and formerly married. Age, measured in years. Additionally, migrant status is a dichotomous variable coded as 1 for individuals who were not born in the given district and 0 otherwise. Disability is another dichotomous variable coded as 1 for individuals reporting any functional disability and 0 otherwise. These variables collectively provide a comprehensive framework for understanding employment choices.

3. Descriptive analysis

The table 1 summarizes the distribution of employment categories across the entire sample (N=36,365) and within three sub-samples: wage-employed (N=7,952), self-employed (N=6,780), and family-contributing workers (N=21,633). The dependent variable, 'Employment categories,' is a binary variable coded as 1 if an individual belongs to a specific category and 0 otherwise. In the whole sample, 21.9% of individuals are wage-employed, 18.6% are self-employed, and the majority, 59.5%, are family-contributing workers. This breakdown provides a clear understanding of how employment choices are distributed in the population.

Education is categorized into five levels: no formal education, primary, middle, secondary, and higher education, each represented as binary variables. In the whole sample, the majority (71.1%) of individuals have no formal education, with smaller proportions having primary (12.1%), middle

(4.4%), secondary (6.1%), and higher education (6.4%). Among wage-employed individuals, 45.8% have no formal education, which is significantly lower compared to the whole sample, while 13.6% have secondary education and 26.4% have higher education, indicating a strong association between higher education levels and wage employment. In the self-employed group, 70.8% have no formal education, with slightly higher proportions in primary (14.8%) and middle education (5.5%) compared to the overall sample, but fewer individuals with secondary (6.8%) or higher education (2%). Family-contributing workers are predominantly less educated, with 80.4% having no formal education, while only 3.1% have secondary education and a negligible 0.4% have higher education. These findings underscore the role of education in determining employment type, with higher educational attainment strongly associated with wage employment and lower educational levels prevalent among family-contributing workers.

In the whole sample, 89.3% of individuals reside in rural areas, while only 10.7% are urban residents. Among the wage-employed, 70.1% are from rural areas, and 29.9% are from urban areas, indicating that wage employment is more common in urban regions compared to other employment types. The self-employed group has a distribution similar to the whole sample, with 89.1% living in rural areas and 10.9% in urban areas. Family-contributing workers are overwhelmingly concentrated in rural areas, with 96.4% residing in rural regions and only 3.6% in urban areas. These findings emphasize the strong relationship between geographic location and employment type. Wage employment is more prevalent in urban areas due to greater availability of formal job opportunities, while rural areas are dominated by informal employment types, such as family-contributing work and self-employment. This distribution highlights the rural-urban divide in employment patterns.

Marital status is categorized into three binary variables: never married, currently married, and formerly married. In the whole sample, 17.3% of individuals are never married, 77.6% are currently married, and 5.1% are formerly married. Among the wage-employed group, 23.1% are never married, a higher proportion compared to the

overall sample, while 69.7% are currently married, and 7.2% are formerly married. In the self-employed group, only 9.9% are never married, 80.6% are currently married, and 9.5% are formerly married, suggesting a higher proportion of formerly married individuals in this group compared to others. Among family-contributing workers, 17.5% are never married, closely mirroring the whole sample, while 79.5% are currently married, and only 3% are formerly married. This distribution highlights differences in marital status across employment categories, with wage-employed individuals having a higher likelihood of being never married, while self-employed individuals show the highest proportion of formerly married individuals. Currently married individuals dominate all categories but are slightly more prevalent among the self-employed and family-contributing workers.

The 'Age' variable is measured in years, ranging from a minimum of 15 to a maximum of 90 in the dataset. The average age in the whole sample is 34.13 years, with a standard deviation of 11.96, indicating moderate variation in age. Among the wage-employed, the average age is slightly lower at 33.06 years, suggesting that wage employment may attract a slightly younger population. For the self-employed group, the average age is higher at 36.65 years, reflecting a trend where individuals in this category tend to be older, possibly due to the time and experience needed to establish self-employment. Family-contributing workers have an average age of 33.72 years, which is close to the overall sample average. This analysis highlights that self-employed individuals tend to be older than those in wage employment or family-contributing work, likely due to the differing nature of these employment types and the experience required.

In the whole sample, 10.9% of individuals are migrants, while the remaining 89.1% are non-migrants. Among wage-employed individuals, the proportion of migrants is higher at 15.1%, indicating that wage employment is relatively more common among migrants, possibly due to better job opportunities in new areas. For the self-employed group, 12.1% are migrants, slightly above the whole sample average but lower than the wage-employed group. Among family-contributing workers, only 9% are migrants, which is below the overall sample average. This distribution suggests that migrants are more likely to be found in wage employment, while non-migrants dominate family-contributing work, reflecting the more localized and informal nature of this type of employment. Self-employment shows a more balanced distribution, but it still leans toward non-migrants.

In the whole sample, 5% of individuals report having a disability. Among the wage-employed group, the proportion of individuals with a disability is slightly lower at 3.8%, suggesting that individuals with disabilities are less likely to engage in wage employment. In the self-employed group, 6.5% of individuals report a disability, which is higher than the overall sample average, indicating that self-employment may be a more viable option for individuals with disabilities. Among family-contributing workers, the proportion is 4.9%, closely aligning with the overall average. These findings highlight differences in employment patterns for individuals with disabilities, suggesting that self-employment may offer greater opportunities or flexibility for those with disabilities compared to wage employment, while family-contributing work remains an accessible option for individuals with or without disabilities.

Table 1. Descriptive statistics

Variable	Whole sample (N=36365)				Wage-employed sample (N=7952)	Self-employed sample (N=6780)	Family contributing worker sample (N=21633)
	Mean	Std. Dev.	Min	Max	Mean	Mean	Mean
Employment categories:							
Wage-employed	0.219	0.413	0	1			
Self-employed	0.186	0.389	0	1			
Family contributing worker	0.595	0.491	0	1			
Education							
No formal	0.711	0.453	0	1	0.458	0.708	0.804
Primary	0.121	0.327	0	1	0.099	0.148	0.121
Middle	0.044	0.204	0	1	0.044	0.055	0.04
Secondary	0.061	0.239	0	1	0.136	0.068	0.031
Higher	0.064	0.244	0	1	0.264	0.02	0.004
Region							
Rural	0.893	0.309	0	1	0.701	0.891	0.964
Urban	0.107	0.309	0	1	0.299	0.109	0.036
Marital status							
Never married	0.173	0.378	0	1	0.231	0.099	0.175
Currently married	0.776	0.417	0	1	0.697	0.806	0.795
Formerly married	0.051	0.22	0	1	0.072	0.095	0.03
Age	34.126	11.962	15	90	33.064	36.651	33.724
Migrant	0.109	0.312	0	1	0.151	0.121	0.09
Disability	0.05	0.217	0	1	0.038	0.065	0.049

4. Results and Discussion

The table 2 and Figure 1 presents the marginal probabilities of being in one of the three employment categories—wage-employed, self-employed, and family-contributing worker—based on different levels of education. The table 2 is based on the estimates of the Table 3. These probabilities, along with their respective standard errors, z-statistics, p-values, and 95% confidence intervals, demonstrate how the likelihood of belonging to a specific employment category changes with education, while holding all other factors constant.

The probability of working in this sector increases greatly as one’s level of education increases, for the wage employed category. The probability of being wage employed is just 15.6 percent for the most poorly educated when the others have no education at all, and rises slightly to 17.4 percent if they have obtained primary education, and to 19.9 percent if they have middle education. It is further evident in the cases of people with secondary education, whose likelihood of increase is 42.6%. Those having more education have the highest probability of 86.9%. All education levels exhibit strong statistical significance, and narrow confidence intervals which suggest these estimates are

reliable. The implication of these findings is that education is fundamental to the attainment of formal wage employment.

Those with no formal education have an 18.4% likelihood of being self-employed, which increases to 24.3% for primary education and peaks at 24.5% for middle education. The probability slightly decreases to 23.6% for individuals with secondary education and drops sharply to 7.9% for those with

higher education. These results suggest that while lower and middle levels of education are associated with higher self-employment, individuals with higher education may prefer wage employment over self-employment. The z-statistics confirm the statistical significance of these probabilities, reinforcing the relationship between education and self-employment.

Table 2. Margins of education level on employment categories

	Margin	std. err	z	P>z	[95% conf. interval]	
Wage-employed						
No formal	0.156	0.002	67.690	0.000	0.152	0.161
Primary	0.174	0.006	31.640	0.000	0.164	0.185
Middle	0.199	0.009	21.030	0.000	0.181	0.218
Secondary	0.426	0.011	40.360	0.000	0.405	0.446
Higher	0.869	0.008	104.030	0.000	0.853	0.885
Self-employed						
No formal	0.184	0.002	76.230	0.000	0.180	0.189
Primary	0.243	0.007	36.990	0.000	0.230	0.256
Middle	0.245	0.011	22.620	0.000	0.224	0.266
Secondary	0.236	0.009	24.900	0.000	0.218	0.255
Higher	0.079	0.007	12.100	0.000	0.066	0.092
Family contributing worker						
No formal	0.659	0.003	228.550	0.000	0.654	0.665
Primary	0.582	0.007	80.380	0.000	0.568	0.596
Middle	0.556	0.012	45.750	0.000	0.532	0.579
Secondary	0.338	0.010	32.410	0.000	0.318	0.359
Higher	0.052	0.006	9.050	0.000	0.041	0.063

For the **family-contributing worker** category, the likelihood decreases consistently with increasing education levels. Individuals with no formal education have the highest probability of being family-contributing workers, at 65.9%. This probability drops to 58.2% for those with primary education, 55.6% for middle education, and 33.8% for secondary education. The lowest probability,

5.2%, is observed for individuals with higher education. The results are highly statistically significant ($p < 0.01$) across all education levels, with high z-statistics and narrow confidence intervals. These findings highlight how increasing education levels reduce dependence on informal, unpaid labor.

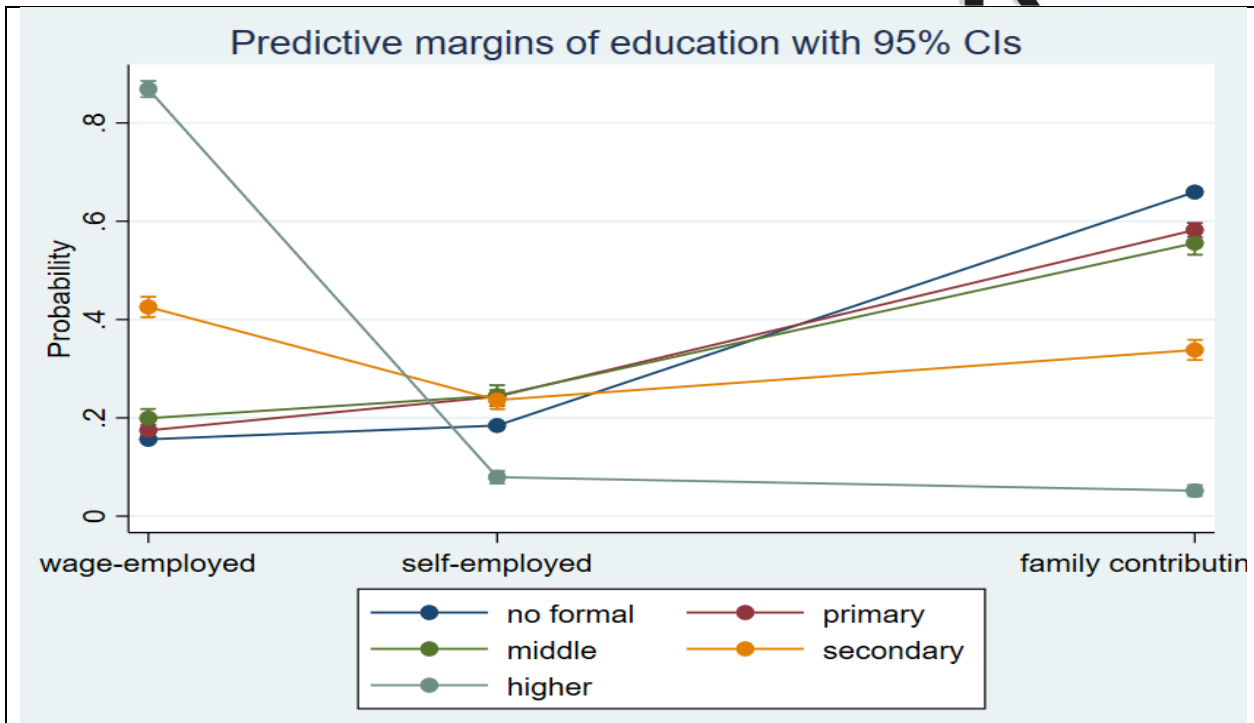


Figure 1. Margins of education level on employment categories

The table 3 presents estimates from a multinomial logit model that analyzes the factors influencing employment categories: Family contributing workers, wage employed and self-employed workers. The table 3 includes 36,365 observations in total, distributed across the three categories: Included were 7,952 wage employed, 6,780 self-employed, and 21,633 family contributing workers. Then, using marginal effects, the model quantifies the impact of each independent variable on the probability to be in a certain employment category, keeping all other variables constant. Marginal effect measures how the change in the likelihood of being in one specific category changes by a change in a value of an independent variable. The z-statistics evaluate the statistical significance of these effects, with higher absolute z-values indicating stronger relationships. Statistical significance is denoted by superscripts: a ($p < 0.01$), b ($p < 0.05$), and c ($p < 0.1$), which reflect varying levels of confidence in the estimates. More importantly, the probability of employment in wage-employment increases significantly through higher education; by 71.3% for those without formal education purposes. Education at

the primary, middle, and secondary level also increases wage employment by 1.8, 4.3, and 26.9 percent, respectively. Primary, middle, and especially higher education slightly increase the likelihood of for self-employment, but decrease the likelihood by 10.5 percent at the higher level, suggesting a tendency toward formal wage employment. Educational attainment also decreases the reliance on 'unpaid' family work by 60.8%. The implication is that education reduces dependence on informal or unpaid labor, and is therefore crucial to enable individuals to access formal employment, these findings indicate. Overall, education plays a pivotal role in shaping employment outcomes. Higher education significantly boosts the probability of securing a wage-employment status while reducing the inclination towards self-employment and unpaid worker. These results underscore the important role of education in transitioning individuals toward more stable and formal employment opportunities, thereby decreasing dependence on informal or unpaid labor. In Pakistan, women with higher education are more inclined toward wage employment than self-

employment or family-contributing work due to several socio-economic and cultural factors. Higher education equips women with specialized skills, qualifications, and professional credentials that increase their access to formal job markets, which offer stable incomes, job security, and career growth opportunities (Wang, 2012; Tholen, 2017; Tomlinson, 2012). Wage employment in formal sectors, such as education, healthcare, and corporate offices, is often perceived as more socially acceptable for women in Pakistan, aligning with societal norms that value structured and respectable work environments (Raza et al., 2023; Ullah et al., 2021). In contrast, self-employment requires significant financial investment, entrepreneurial skills, and access to markets, which are often limited for women due to systemic barriers such as restricted mobility, limited networks, and cultural constraints (Christodoulou et al., 2024; Cieřlik & van Stel, 2024). Additionally, women with higher education are less likely to engage in family-contributing work, as their education often positions them for more productive and independent roles outside the informal economy (Franzke et al., 2022; Alam et al., 2015; Thi, 2024). Thus, wage employment becomes the most viable and culturally aligned pathway for educated women in Pakistan to utilize their skills and achieve financial independence.

The results show that urban residence significantly increases the probability of wage employment by 26.6% ($dy/dx = 0.266$), with a high z-statistic of 29.51, indicating strong statistical significance. Similarly, urban residence slightly increases the probability of self-employment by 5%, with a z-statistic of 6.22, also statistically significant. Conversely, urban residence reduces the likelihood of being a family-contributing worker by 31.5%, with a z-statistic of -34.62, reflecting a strong negative relationship. Overall, these results indicate that living in urban areas significantly shifts employment patterns toward wage employment and, to a lesser extent, self-employment, while reducing dependence on informal, unpaid family work. This highlights the role of urban environments in providing access to more formal and diversified employment opportunities.

For currently married individuals, the likelihood of being wage-employed decreases slightly by 2.6%, with a statistically significant z-statistic of -3.88. The probability of being self-employed increases by 3.5%, also statistically significant with a z-statistic of 5.02. However, there is no statistically significant effect on the likelihood of being a family-contributing worker. For formerly married individuals, the probability of being wage-employed increases by 10.4% and the likelihood of self-employment rises significantly by 16%, both with strong statistical significance ($z=7.93$ and $z=12.24$, respectively). Conversely, the likelihood of being a family-contributing worker decreases by 26.5%, also highly significant ($z = -18.68$). These findings suggest that marital status influences employment patterns, with currently married individuals more likely to be self-employed and less likely to be wage-employed, while formerly married individuals are more likely to pursue wage or self-employment and significantly less likely to engage in unpaid family work.

The effect of age on the likelihood of being wage-employed is negligible and not statistically significant, indicating that age does not have a meaningful impact on wage employment. However, age significantly increases the likelihood of being self-employed by 0.3%, with a highly significant z-statistic of 13.5. Conversely, age significantly decreases the probability of being a family-contributing worker by 0.2%, as indicated by a z-statistic of -9.25. These results suggest that as individuals grow older, they are more likely to transition to self-employment while becoming less reliant on unpaid family-contributing work, reflecting a potential shift toward more independent and formal work arrangements with age. Wage employment, however, remains unaffected by age.

The results show that being a migrant significantly increases the likelihood of being wage-employed by 4.9%, with a highly significant z-statistic of 8.88. For self-employment, the effect is smaller, increasing the probability by 1.2%, with marginal statistical significance ($z=1.92$, $p < 0.1$). On the other hand, a migrant has less likelihood of being a family contributing worker vis-à-vis native person. Disability does not have a meaningful impact on the likelihood of being wage-employed, as it is

statistically insignificant. For self-employment, disability significantly increases the probability by 3.1%, with a highly significant z-statistic of 3.53, suggesting that individuals with disabilities are more likely to engage in self-employment. The marginal effect for family-contributing work is slightly negative but not statistically significant ($z = -1.57$), showing no substantial effect of disability

on this category. Overall, the results indicate that individuals with disabilities are more inclined toward self-employment, likely due to the flexibility it offers, while their likelihood of wage employment or family-contributing work does not significantly differ from individuals without disabilities.

Table 3. Estimates of Multinomial Logit model on employment categories – marginal effects

Variables	Wage-employed		Self-employed		Family contributing worker	
	dy/dx	z-stat	dy/dx	z-stat	dy/dx	z-stat
Education						
No formal (base)						
Primary	0.018 ^a 0.006	3.030	0.059 ^a 0.007	8.380	-0.077 ^a 0.008	-9.850
Middle	0.043 ^a 0.010	4.390	0.061 ^a 0.011	5.460	-0.104 ^a 0.013	-8.300
Secondary	0.269 ^a 0.011	24.730	0.052 ^a 0.010	5.270	-0.321 ^a 0.011	-29.490
Higher	0.713 ^a 0.009	81.490	-0.105 ^a 0.007	-14.890	-0.608 ^a 0.006	-94.270
Urban	0.266 ^a 0.009	29.510	0.050 ^a 0.008	6.220	-0.315 ^a 0.009	-34.620
Marital status:						
Never married (base)						
Currently married	-0.026 ^a 0.007	-3.880	0.035 ^a 0.007	5.020	-0.009 0.008	-1.080
Formerly married	0.104 ^a 0.013	7.930	0.160 ^a 0.013	12.240	-0.265 ^a 0.014	-18.680
Age	-0.000 0.000	-1.340	0.003 ^a 0.000	13.500	-0.002 ^a 0.000	-9.250
Migrant	0.049 ^a 0.006	8.880	0.012 ^c 0.006	1.920	-0.061 ^a 0.007	-8.210
Disability	-0.014 0.009	-1.480	0.031 ^a 0.009	3.530	-0.017 0.011	-1.570
Observation in each category	7,952		6,780		21,633	
Total Observation	36,365					

Robust standard errors in parentheses, ^a $p < 0.01$, ^b $p < 0.05$, ^c $p < 0.1$

5. Conclusion

The objective of this study is to explore and analyze the impact of education levels on women's employment choices in Pakistan, a country where an astounding 65% of employed women have no

formal education. These employment choices include wage employment, self-employment, and family contributing work. The study highlights the transformative role of education in shaping women's employment choices in Pakistan. Women with higher education are more likely to secure wage employment, with probabilities rising from 15.6% for uneducated women to 86.9% for those

with higher education. Conversely, higher education reduces the likelihood of self-employment and family-contributing work, which are more common among less-educated women. Wage employment offers stability, income security, and social acceptability, aligning with cultural norms. These findings emphasize the critical need to invest in women's education to shift them toward formal and stable employment, enabling them to contribute more effectively to Pakistan's economy.

To address the disparity in women's employment choices in Pakistan, policymakers should prioritize investments in female education at all levels. Expanding access to quality education, especially secondary and higher education, can significantly increase women's participation in wage employment. Vocational training programs and skill development initiatives should be introduced to bridge the gap between education and job market requirements. Furthermore, targeted policies to create gender-sensitive workplaces and increase women's access to formal job markets, such as flexible work options and childcare support, can enhance their employment opportunities. Encouraging entrepreneurship through financial incentives, training, and market access for women with lower education levels can also reduce dependence on unpaid family labor.

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