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Women's employment status in Indonesia: An intersectionality-informed analysis of disability, household characteristics, and socioeconomic factors

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Abstract:

Women's employment in Indonesia reflects inequalities associated with disability, household characteristics, socioeconomic resources, and residential location. This study examines differences in women's employment status by disability and assesses the associations between individual, household, and socioeconomic characteristics and seven employment categories. Using cross-sectional data from the 2021 Indonesian National Labor Force Survey (Sakernas), covering 207,276 women aged 15 years and older, the study employs descriptive analysis and multinomial logistic regression, with salaried employment as the reference category. Intersectionality serves as an interpretive framework. The findings show that women with disabilities have a lower proportion of salaried employment and a higher proportion of self-employment than women without disabilities. After controlling for other characteristics, disability is associated with a higher relative risk ratio for unpaid family work compared with salaried employment (RRR = 1.136). Household-head status and domestic workload are associated with higher relative risk ratios in selected non-salaried employment categories, while education is negatively associated with all six alternative categories. Work-related digital technology use shows negative associations with most employment categories but a positive association with self-employment involving permanent paid workers. Residential location also exhibits varying associations across employment categories. These findings highlight the differentiated relationships between women's employment status and individual, household, and socioeconomic characteristics. The study contributes an intersectionality-informed assessment of employment inequality and provides evidence to inform disability-inclusive employment policies, caregiving support, digital skills development, and geographically responsive employment programs. The cross-sectional findings do not establish causal relationships or statistical interactions.

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INTRODUCTION

Women's participation in the labor market is important for gender equality and economic inclusion. However, gender norms, household responsibilities, and structural barriers may constrain women's employment and entrepreneurship opportunities (Emon & Nipa, 2024; Rana et al., 2024; Wu et al., 2024). Gender equality in labor allocation has been linked to economic growth, while skills development, household circumstances, and employment opportunities remain relevant to women's economic empowerment (Bertay et al., 2025; Brago et al., 2025; Gupta et al., 2024). Descriptive findings from the 2021 Indonesian National Labor Force Survey (Sakernas) sample indicate that women are substantially represented in self-employment, freelance work, and unpaid family work, alongside salaried employment. Differences in employment arrangements are particularly important for women with disabilities, who may face discrimination, limited accessibility, and unequal opportunities for skills development (Bechange et al., 2024; Fefoame & Loryman, 2024; Usman et al., 2024). Digital development is also associated with women's employment opportunities, introducing another dimension relevant to labor-market inequality (Ahmad et al., 2024). Together, these considerations highlight the need to examine disability, household characteristics, socioeconomic resources, and digital technology use within a common analytical framework to better understand variations in women's employment status.

Previous studies have highlighted three major dimensions associated with women's employment status. First, education and skills are associated with women's employment opportunities, but qualifications alone do not eliminate persistent occupational or gender inequalities (Choi et al., 2023; Jit et al., 2024; Ankita & Singh, 2025; Nennstiel & Becker, 2025). Second, domestic responsibilities and rural–urban differences are associated with women's employment participation and employment arrangements (Taye & Tesfaye, 2024; Tripathi et al., 2024; Setyonaluri & Utomo, 2024; Susilo et al., 2024). Third, digital development is associated with women's employment opportunities, although unequal access to technology and digital skills may constrain their economic inclusion (Ahmad et al., 2024; Shava & Muringa, 2025; Ferreira & Silva, 2025). Despite these contributions, limited attention has been given to examining disability status, household characteristics, socioeconomic resources, and digital technology use simultaneously in relation to distinct employment categories among Indonesian women. This gap highlights the need for an integrated analysis that distinguishes salaried employment, self-employment, casual work, and unpaid family work rather than treating women's employment as a single or binary outcome.

This study aims to examine the associations between disability status, household characteristics, socioeconomic resources, and women's employment status in Indonesia using data from the 2021 National Labor Force Survey (Sakernas). Specifically, it addresses three research questions: (1) How does the distribution of employment status differ between women with and without disabilities? (2) How are disability status, household characteristics, and socioeconomic resources associated with women's employment status relative to salaried employment? (3) How do the direction and magnitude of these associations vary across employment categories? Theoretically, this study contributes to the literature on women's employment inequality by applying an intersectionality-informed perspective to examine multiple social and economic dimensions within a common analytical framework. Empirically, it provides a differentiated assessment of seven employment categories through multinomial logistic regression, moving beyond binary measures of employment. In practice, the findings provide evidence to inform more inclusive employment policies that address disability, household responsibilities, educational disparities, digital technology use, and geographical inequalities.

The significance of this study lies in recognizing that women's employment inequality extends beyond labor-market participation to variations in employment arrangements. Differences across salaried employment, self-employment, casual work, and unpaid family work highlight the need to consider diverse individual, household, and socioeconomic circumstances. Understanding these patterns is particularly important for identifying employment disparities associated with disability, educational attainment, household responsibilities, and geographical location. Such evidence can inform more inclusive labor-market policies that address the diverse employment circumstances of Indonesian women.

METHOD

Research Approach

This study employed a quantitative, cross-sectional research approach using data from the 2021 National Labor Force Survey (Sakernas), conducted by Statistics Indonesia (Badan Pusat Statistik, BPS). The study examined associations between disability status, household characteristics, socioeconomic resources, and women's employment status in Indonesia. Crenshaw's intersectionality perspective (1989, 1991) informed the conceptual framework by emphasizing the importance of considering multiple social positions when examining employment inequality. Consistent with quantitative intersectionality scholarship, individual, household, and socioeconomic characteristics were incorporated into a common analytical framework (Bauer et al., 2021; Guan et al., 2021). Intersectionality was employed as an interpretive perspective, while the statistical analysis focused on conditional associations rather than interaction effects.

Multinomial logistic regression was employed to examine differences across seven nominal employment categories without an inherent ordering (Vajari et al., 2020; Hoffman et al., 1988; Ziegler, 2005). The model estimated associations between explanatory variables and each alternative employment category relative to salaried employment, while controlling for other observed characteristics. Given the cross-sectional design, the findings were interpreted as statistical associations rather than causal relationships.

Conceptual Framework

This study draws on Crenshaw's intersectionality perspective (1989, 1991) to examine women's employment inequality in relation to disability status, household conditions, and socioeconomic resources. This framework recognizes that women's employment experiences are situated within multiple social circumstances rather than a single individual characteristic. Intersectionality serves as an interpretive framework without assuming that statistical interactions among these dimensions have been established.

Disability status is examined in relation to employment opportunities, drawing on research concerning workplace accessibility, discrimination, mobility limitations, and institutional barriers (Bechange et al., 2024; Fefoame & Loryman, 2024; Usman et al., 2024). Household-head status, domestic workload, and household size reflect domestic and economic circumstances that may be associated with employment arrangements, consistent with studies linking family responsibilities to women's employment choices (Wu et al., 2024). However, discrimination, accessibility, institutional practices, and employment motivations are not directly measured.

Education, social participation, age, digital technology use, and place of residence are incorporated to examine socioeconomic and contextual variations in employment status. Previous studies emphasize the relevance of education, technology, and socioeconomic conditions to labor-market opportunities (Zwar et al., 2021; Leso et al., 2023; Qiu et al., 2021). These characteristics are included simultaneously in a multinomial logistic regression model

to estimate their conditional associations across employment categories. The analysis accommodates differences in the direction and magnitude of associations but does not establish causal mechanisms or statistical interactions among social positions.

Data and Variables

This study used data from the 2021 National Labor Force Survey (Sakernas), conducted by Statistics Indonesia (BPS). The analytical sample comprised 207,276 women aged 15 years and older whose employment status was classified into seven mutually exclusive nominal categories: self-employed, self-employed with non-permanent workers, self-employed with permanent paid workers, salaried employee, agricultural freelance worker, non-agricultural freelance worker, and unpaid family worker. Observations with incomplete information on the study variables were excluded. Salaried employment served as the reference category in the multinomial logistic regression model. These categories represent employment arrangements rather than direct measures of employment quality, security, or social protection.

The independent variables were grouped into three dimensions: individual characteristics (disability status and age), household characteristics (household-head status, domestic workload, and household size), and socioeconomic and contextual characteristics (education, social participation, place of residence, and digital technology use). Disability status reflected long-term functional impairments in vision, hearing, mobility, hand or finger use, speech, or other areas. Domestic workload was represented by a binary indicator based on the activities that occupied the most time during the preceding week, while household size was the number of household members.

Education was measured in years of formal schooling, while social participation included involvement in community, recreational, and religious activities. Place of residence distinguished urban and rural areas, and digital technology use referred to work-related use of computers, smartphones, or other digital devices. Table 1 presents the operational definitions and coding of all variables, while descriptive statistics are reported separately in the Results section.

Table 1

Operational Definitions and Measurement of Study Variables

Variables	Operational Definitions	Measurement and Coding
Dependent Variable		
Employment Status	Respondent's employment status classified into seven nominal categories	1 = Self-employed; 2 = Self-employed with non-permanent workers; 3 = Self-employed with permanent paid workers; 4 = Salaried employee; 5 = Agricultural freelance worker; 6 = Non-agricultural freelance worker; 7 = Unpaid family worker
Individual Characteristics		
Disability Status	Long-term functional impairment, including difficulties involving vision, hearing, walking, hand or finger use, speech, or other reported disabilities	1 = Has a disability; 0 = No disability
Age	Respondent's age	Years
Household Characteristics		
Household Head	Whether the respondent is the head of the household	1 = Head of household; 0 = Not head of household

Household Workload	Classification of domestic workload based on the activity occupying the most time during the preceding week	1 = High workload; 0 = Low workload
Household Size	Total number of household members	Number of household members
Socioeconomic and Contextual Characteristics		
Social Participation	Participation in social gatherings, sports, night patrols, community service, religious study groups, religious worship, or other community activities	1 = Participates; 0 = Does not participate
Education	Total years of formal education completed	Years of education
Place of Residence	Respondent's residential area	1 = Urban; 0 = Rural
Digital Technology Use	Use of digital technology for work-related activities, including computers, laptops, tablets, smartphones, cameras, recording devices, digital calculators, or other digital equipment	1 = Uses at least one digital device for work; 0 = Does not use any digital device for work

Note. N = 207,276. Employment status is treated as a nominal categorical variable, with salaried employment serving as the reference category. Binary explanatory variables are coded 0 and 1.
Source*:* Authors' operationalization based on Sakernas 2021.

Model Specification

This study employed multinomial logistic regression (Mlogit) to estimate associations between individual characteristics, household conditions, socioeconomic resources, and women's employment status. The model was appropriate because the dependent variable comprised seven mutually exclusive nominal categories without an inherent ordering. Unlike binary or ordered logistic regression, Mlogit accommodates multiple unordered outcomes and estimates their probabilities relative to a designated reference category (Vajari et al., 2020; Hoffman & Duncan, 1988; Ziegler, 2005).

The conditional probability of woman *i* belonging to employment category *j* was specified as:

$$P(Y_i = j \mid X_i) = \exp(X_i^T \beta_j) / \Sigma_{k=1}^{7} \exp(X_i^T \beta_k)$$

where Y_i denotes employment status, X_i represents the explanatory-variable vector, β_j denotes the coefficient vector for category *j*, and *k* indexes the seven employment categories. Salaried employment (category 4) served as the reference outcome, with $\beta_4 = 0$. The model simultaneously included disability status, household-head status, domestic workload, household size, social participation, education, place of residence, age, and digital technology use. No interaction terms were specified.

Regression coefficients were exponentiated into relative risk ratios (RRRs), calculated as:

$$RRR_{jr} = \exp(\beta_{jr})$$

where β_{jr} represents the coefficient of explanatory variable *r* for employment category *j* relative to salaried employment. An RRR greater than 1 indicates an increase in the probability ratio of a given employment category relative to salaried employment, whereas an RRR below 1 indicates a decrease. For binary variables, the RRR compares the category coded 1 with the category coded 0; for continuous variables, it represents the multiplicative

change associated with a one-unit increase, holding other variables constant. These estimates do not represent changes in absolute probabilities (Vajari et al., 2020).

Multicollinearity was assessed using the variance inflation factor (VIF), while model fit was evaluated using the likelihood ratio test, pseudo-R^2 measures, and the Akaike information criterion (AIC). These diagnostics assess aspects of model fit but do not independently establish robustness to alternative specifications. Given the cross-sectional design, the results were interpreted as conditional associations rather than causal effects. Potential limitations include omitted variables, unobserved characteristics, and reverse causality, particularly concerning work-related digital technology use. Employment quality, workplace accessibility, income security, and social protection were not directly measured.

RESULTS AND DISCUSSION

Results

Individual characteristics, domestic burdens, and employment inequality among women

Table 2 presents descriptive statistics for 207,276 working-age women included in the 2021 National Labor Force Survey (Sakernas). The variables encompass employment status, disability, household characteristics, social participation, education, place of residence, age, and digital technology use. Employment status was classified into seven nominal categories, while the explanatory variables included binary and continuous measures. These descriptive statistics provide an overview of the sample characteristics and the distribution of variables subsequently examined in the multinomial logistic regression analysis.

Table 2

Descriptive Statistics of Variables Used in the Model

Variable	Obs.	Mean	SD	Min	Max
Employment Status	207,276	4.016	2.278	1	7
Disability Status	207,276	0.069	0.253	0	1
Household Head	207,276	0.860	0.347	0	1
Household Workload	207,276	0.890	0.313	0	1
Household Size	207,276	3.997	1.670	1	20
Social Participation	207,276	0.748	0.434	0	1
Education	207,276	8.692	4.805	1	22
Place of Residence	207,276	0.407	0.491	0	1
Age	207,276	42.184	13.753	15	98
Digital Technology Use	207,276	0.403	0.490	0	1

*Note***.** For binary variables, the meaning represents the proportion coded as 1. Employment status is treated as a nominal outcome in the multinomial logistic regression.

Based on the reported variable coding, women with disabilities accounted for 6.9% of respondents, with a mean age of 42.18 years and an average educational measure of 8.69. The average household comprised approximately four members. Furthermore, 86.0% of respondents were classified as household heads, and 89.0% were classified as having a high domestic workload. Social participation was reported by 74.8% of respondents, whereas 40.3% used digital technology and 40.7% resided in urban areas. These distributions provide an overview of the individual, household, and socioeconomic characteristics of women included in the study.

Overall, the descriptive findings indicate variations in disability status, household responsibilities, educational attainment, social participation, residential location, and digital technology use among respondents. The relatively high proportions recorded for household workload and the differences in access-related characteristics provide relevant descriptive

information for subsequent analysis of women's employment status. However, these statistics do not establish significant associations between the explanatory variables and employment outcomes. Their relationships with different employment categories are examined in the subsequent analyses.

Employment distribution by disability status

Table 3 presents the distribution of women's employment status according to disability status. The percentages represent the proportion of respondents in each employment category relative to the total sample. As women with disabilities accounted for a smaller proportion of respondents, within-group percentages were additionally calculated from the reported figures to facilitate comparisons between women with and without disabilities. These comparisons provide a descriptive overview of employment patterns across the two groups.

Table 3

Employment Status of Respondents by Disability Status

Employment Status	Non-Disability (%)	Disability (%)
Self-employed	18.85	2.13
Self-employed with non-permanent workers	12.69	1.33
Self-employed with permanent and paid workers	1.43	0.10
Salaried employee	28.46	1.00
Agricultural freelance worker	2.92	0.29
Non-agricultural freelance worker	1.43	0.11
Unpaid family worker	27.35	1.91
Total	**93.12**	**6.88**

Note. N = 207,276. Percentages represent shares of the total sample. Within-group percentages discussed in the text were calculated from the reported percentages and are approximate due to rounding.

Table 3 reveals differences in employment distributions between women with and without disabilities. Based on approximate within-group percentages, salaried employment accounted for 30.56% of women without disabilities, compared with 14.53% of women with disabilities. Conversely, self-employment represented a larger proportion among women with disabilities (30.96%) than among those without disabilities (20.24%). Combining all three self-employment categories, the corresponding proportions were approximately 51.74% and 35.41%, respectively. Unpaid family work also accounted for substantial proportions in both groups, representing approximately 29.37% of women without disabilities and 27.76% of women with disabilities. Overall, these descriptive findings indicate that women with disabilities were more heavily represented in self-employment and less represented in salaried employment than women without disabilities. However, these differences do not establish causal relationships or statistical significance.

Multinomial logistic regression analysis

Table 4 presents the results of the multinomial logistic regression analysis, with salaried employment serving as the reference category. The model examines associations between women's employment status and individual characteristics, household conditions, and socioeconomic resources, including disability status, household-head status, domestic workload, household size, social participation, educational attainment, place of residence, age, and digital technology use. Each estimated coefficient represents the change in the log relative probability of belonging to a particular employment category rather than salaried employment, holding the other explanatory variables constant.

Table 4
Multinomial Logistic Regression Results

Variables	Self-employed	Self-employed with Non-permanent Workers	Self-employed with Permanent Paid Workers	Agricultural Freelance Worker	Non-agricultural Freelance Worker	Unpaid Family Worker
Disability Status	0.185*** (0.032)	0.027 (0.035)	−0.188** (0.078)	−0.162*** (0.053)	0.023 (0.077)	0.128*** (0.034)
Household Head	−0.300*** (0.021)	−0.228*** (0.024)	−0.762*** (0.047)	0.124*** (0.038)	−0.174*** (0.052)	3.111*** (0.043)
Household Workload	0.488*** (0.024)	0.664*** (0.030)	0.230*** (0.062)	0.585*** (0.057)	0.285*** (0.062)	0.044** (0.021)
Household Size	−0.019*** (0.005)	0.128*** (0.005)	0.012 (0.012)	−0.034*** (0.009)	0.027** (0.012)	0.000 (0.005)
Social Participation	0.116*** (0.016)	0.192*** (0.018)	0.043 (0.043)	0.197*** (0.032)	0.104** (0.042)	0.132*** (0.016)
Education	−0.207*** (0.002)	−0.212*** (0.002)	−0.112*** (0.005)	−0.297*** (0.004)	−0.270*** (0.005)	−0.252*** (0.002)
Place of Residence	−0.109*** (0.014)	−0.506*** (0.016)	0.144*** (0.039)	−0.916*** (0.033)	0.452*** (0.038)	−0.929*** (0.014)
Age	0.022*** (0.001)	0.032*** (0.001)	0.046*** (0.002)	0.015*** (0.001)	−0.004** (0.002)	0.000 (0.001)
Digital Technology Use	−0.532*** (0.016)	−0.637*** (0.018)	0.506*** (0.045)	−1.768*** (0.045)	−0.928*** (0.044)	−1.315*** (0.016)
Constant	1.006*** (0.049)	−0.495*** (0.057)	−3.712*** (0.133)	0.137 (0.099)	−0.224* (0.124)	0.313*** (0.059)

Model Fit Statistics

Indicators	Values
Log-likelihood	−270328.470
LR $chi^2(54)$	106623.960
Prob > chi^2	0.000
Pseudo R^2	0.165
McFadden's R^2	0.165
Maximum Likelihood R^2	0.402
Cragg & Uhler's R^2	0.421
AIC	2.609

Note. Salaried employment is the reference category. Coefficients are reported with standard errors in parentheses. * p < 0.10; ** p < 0.05; *** p < 0.01.
Source: Authors' calculations based on Sakernas 2021.

Disability status showed significant associations with several employment categories. Relative to salaried employment, disability was positively associated with self-employment (β = 0.185, p < 0.01) and unpaid family work (β = 0.128, p < 0.01). Conversely, negative associations were observed for self-employment with permanent paid workers (β = −0.188, p < 0.05) and agricultural freelance work (β = −0.162, p < 0.01). No statistically significant associations were identified for self-employment with non-permanent workers or non-agricultural freelance work. These findings indicate that the direction and significance of the associations between disability status and employment differ across occupational categories.

Household characteristics were also associated with employment status. Household-head status showed a particularly large positive coefficient for unpaid family work (β = 3.111, p < 0.01), relative to salaried employment, while negative associations were observed for several self-employment categories. Domestic workload was positively associated with all six alternative employment categories, with coefficients ranging from 0.044 for unpaid family work to 0.664 for self-employment with non-permanent workers. Household size showed

varying associations across employment categories, while social participation was positively associated with five of the six alternative categories. Age was positively associated with four employment categories, negatively associated with non-agricultural freelance work, and not significantly associated with unpaid family work. These results indicate that household and individual characteristics exhibit different patterns of association across employment categories.

Educational attainment was negatively associated with all six employment categories relative to salaried employment, with the largest negative coefficient observed for agricultural freelance work ($\beta = -0.297$, $p < 0.01$). Digital technology use was negatively associated with five categories, particularly agricultural freelance work ($\beta = -1.768$, $p < 0.01$) and unpaid family work ($\beta = -1.315$, $p < 0.01$), but positively associated with self-employment involving permanent paid workers ($\beta = 0.506$, $p < 0.01$). Place of residence also showed varying associations across employment categories, including negative coefficients for agricultural freelance work ($\beta = -0.916$, $p < 0.01$) and unpaid family work ($\beta = -0.929$, $p < 0.01$), alongside positive coefficients for self-employment with permanent paid workers and non-agricultural freelance work.

Overall, the regression findings reveal that disability status, household responsibilities, educational attainment, digital technology use, residential location, and other socioeconomic characteristics are associated with women's employment status in different ways. The direction and statistical significance of these associations vary across occupational categories relative to salaried employment. These results provide evidence of conditional statistical relationships within the model but do not establish causal effects or directly measure differences in employment security, job quality, or access to social protection.

Relative risk ratio analysis

Table 5 presents the relative risk ratios (RRRs) derived from the multinomial logistic regression coefficients, with salaried employment serving as the reference category. RRR values greater than 1 indicate a higher relative probability of belonging to a particular employment category rather than salaried employment, whereas values below 1 indicate a lower relative probability, holding other explanatory variables constant. These estimates facilitate the interpretation of the magnitude of associations between individual characteristics, household conditions, socioeconomic resources, and women's employment status.

Table 5
Relative Risk Ratios (RRRs) of Women's Employment Status

Variable	Self-employed	Self-employed (NP)	Self-employed (P)	Agri. Freelance	Non-agri. Freelance	Unpaid Family
Disability Status	1.203***	1.027	0.829**	0.851***	1.023	1.136***
Household Head	0.741***	0.796***	0.467***	1.132***	0.840***	22.450***
Household Workload	1.629***	1.943***	1.259***	1.796***	1.330***	1.045**
Household Size	0.981***	1.136***	1.012	0.967***	1.027**	1.000
Social Participation	1.123***	1.212***	1.044	1.218***	1.110**	1.141***

Education	0.813***	0.809***	0.894***	0.743***	0.763***	0.777***
Place of Residence	0.897***	0.603***	1.155***	0.400***	1.571***	0.395***
Age	1.022***	1.033***	1.047***	1.015***	0.996**	1.000
Digital Technology Use	0.587***	0.529***	1.659***	0.171***	0.395***	0.269***

Note. RRR = relative risk ratio; NP = non-permanent workers; P = permanent paid workers. Salaried employment is the reference category. RRRs were obtained by exponentiating the multinomial logistic regression coefficients. * p < 0.10; ** p < 0.05; *** p < 0.01.
Source*:* Authors' calculations based on Sakernas 2021.

Disability status showed varying associations with women's employment categories. Compared with salaried employment, women with disabilities had a 20.3% higher risk ratio for self-employment (RRR = 1.203, p < 0.01) and a 13.6% higher risk ratio for unpaid family work (RRR = 1.136, p < 0.01). Conversely, disability was associated with a 17.1% lower relative ratio for self-employment involving permanent paid workers (RRR = 0.829, p < 0.05) and a 14.9% lower ratio for agricultural freelance work (RRR = 0.851, p < 0.01). Household-head status exhibited a particularly large association with unpaid family work (RRR = 22.450, p < 0.01). Domestic workload was positively associated with all six alternative employment categories, with the largest relative ratio observed for self-employment involving non-permanent workers (RRR = 1.943, p < 0.01), corresponding to a 94.3% higher relative ratio than for salaried employment.

Educational attainment was associated with lower relative ratios across all six alternative employment categories. For each one-unit increase in the education measure, the relative ratio for agricultural freelance work compared with salaried employment was 25.7% lower (RRR = 0.743, p < 0.01), while the corresponding ratios for non-agricultural freelance work and unpaid family work were 23.7% and 22.3% lower, respectively. Digital technology use showed particularly large associations with employment categories. Women using digital technology had an 82.9% lower relative ratio for agricultural freelance work (RRR = 0.171, p < 0.01) and a 73.1% lower ratio for unpaid family work (RRR = 0.269, p < 0.01). In contrast, digital technology use was associated with a 65.9% higher relative ratio for self-employment involving permanent paid workers (RRR = 1.659, p < 0.01).

Place of residence was also associated with differences in employment categories. Relative to the reference residential category, the residence category coded as 1 was associated with lower relative ratios for agricultural freelance work (RRR = 0.400, p < 0.01) and unpaid family work (RRR = 0.395, p < 0.01), but a higher relative ratio for non-agricultural freelance work (RRR = 1.571, p < 0.01). Household size and age showed varying associations across employment categories, while social participation was positively associated with five of the six alternative categories. These findings indicate that demographic characteristics and socioeconomic resources have different magnitudes and directions of association depending on the employment category examined.

Overall, the RRR estimates highlight differences in the magnitude of associations between disability, household responsibilities, educational attainment, digital technology use, residential location, and women's employment status. Disability and domestic workload were associated with higher relative ratios for selected non-salaried employment categories, whereas education and digital technology use generally showed lower relative ratios for several categories. These findings provide a more interpretable representation of the

multinomial logistic regression results but do not establish causal effects or directly measure employment quality, job security, or access to social protection.

Model diagnostics and fit

Several diagnostic measures were examined to assess multicollinearity and the overall fit of the multinomial logistic regression model. The mean Variance Inflation Factor (VIF) was 1.25, indicating low multicollinearity among the explanatory variables. The likelihood-ratio test showed that the fitted model significantly improved upon the intercept-only model (LR $\chi^2(54) = 106{,}623.960$, $p < 0.001$). Model fit statistics included a McFadden pseudo-R^2 of 0.165, a Cragg–Uhler R^2 of 0.421, and a reported AIC per observation of 2.609. These indicators provide information about relative model fit but do not represent the proportion of variance explained as R^2 does in linear regression.

Overall, the diagnostic results indicate that the model provides statistically significant information about associations between individual characteristics, household conditions, socioeconomic resources, and women's employment status. The relatively low mean VIF suggests that multicollinearity is unlikely to be a major concern on average, while the likelihood-ratio test supports the joint contribution of the explanatory variables relative to the null model. However, these diagnostics do not independently establish robustness to alternative model specifications or validate all modeling assumptions. Given the cross-sectional nature of the data, the estimated relationships should be interpreted as conditional associations rather than causal effects.

Discussion

The findings indicate that women's employment status is associated with disability status, household characteristics, socioeconomic resources, and place of residence. First, women with disabilities have a lower proportion of salaried employment and a higher proportion of self-employment than women without disabilities. After controlling for other variables, disability is associated with a higher relative risk ratio for unpaid family work compared with salaried employment. Second, household-head status and domestic workload are associated with higher relative risk ratios for several non-salaried employment categories, whereas education is associated with lower relative ratios across all six alternative categories. Digital technology use shows negative associations with most employment categories but a positive association with self-employment involving permanent paid workers. Third, place of residence exhibits different associations across employment categories. Overall, these findings underscore the relevance of individual, household, and socioeconomic characteristics but do not establish causality, interactions among these characteristics, or differences in employment security and social protection.

The social relevance of these findings lies in inequalities in women's opportunities to access different forms of employment, particularly when disability and domestic responsibilities are considered. The lower proportion of salaried employment among women with disabilities and the association between domestic workload and non-salaried employment highlight the importance of considering barriers to employment access rather than merely the number of employed women. These issues relate to debates concerning the distribution of caregiving responsibilities and unpaid work, which may constrain women's economic choices (Padonou et al., 2023; Sharma et al., 2025). Studies on childcare support and informal employment demonstrate the relevance of family circumstances to employment opportunities (Harris & Patacchini, 2024; Wu et al., 2024). Disability-related literature also emphasizes challenges in accessing the labor market and the need for inclusive working

environments (Bechange et al., 2024; Fefoame & Loryman, 2024). In the Indonesian context, employment inclusion is associated with broader economic inequalities (Noor, 2024). Nevertheless, this study does not directly measure discrimination, employment quality, or social security.

Crenshaw's intersectionality perspective (1989, 1991) provides a framework for understanding women's employment inequality through the social positions they experience simultaneously, rather than treating disability as the sole explanatory factor. Studies on gender disparities in the labor market and vulnerabilities related to gender and disability support the importance of this contextual interpretation (Abdulla & Serikbayeva, 2024; Hussein, 2025). The findings reveal a lower proportion of salaried employment among women with disabilities, while disability and domestic workload are each associated with employment categories within the same model. This raises questions about how barriers to employment access and household responsibilities may coexist rather than demonstrating their interaction effects. Education and digital technology are also associated with employment patterns, although the associations involving technology vary across categories. Previous literature emphasizes both the opportunities and challenges of digital transformation for women (Ye & Cai, 2024; Singh et al., 2025). Regional differences and the relevance of human capital development and digital entrepreneurship support further inform this interpretation (Adriani & Yustini, 2021; Kabbara, 2024), but do not establish structural or causal mechanisms.

A fundamental lesson of this study is that women's employment categories do not automatically indicate their level of economic empowerment (Ghosh & Chopra, 2019; Fincham, 2025). Differences in the proportion of salaried employment by disability status, and the associations between domestic workload and employment categories, suggest that being employed does not necessarily reflect the range of available choices. Self-employment and freelance work may provide livelihood opportunities but may also reflect limited alternatives, while unpaid family work does not guarantee personal income (Chacko, 2017). Research on the experiences of women with disabilities further emphasizes the importance of accessibility in understanding employment opportunities (Chan & Hutchings, 2023). Because this study does not measure motivations for employment choices, autonomy, income, or employment protection, neither constrained choices nor empowerment can be inferred directly from employment status. Accordingly, academic analysis should distinguish observed employment distributions from the quality of opportunities, freedom of choice, and recognition of work that often remains invisible (Sarfraz et al., 2021; Deshpande & Kabeer, 2024).

The findings concerning domestic workload relate to studies on the allocation of unpaid household labor (Ali et al., 2024) and the relationship between caregiving responsibilities and informal employment choices (Wu et al., 2024). The lower proportion of salaried employment among women with disabilities is also consistent with research highlighting barriers to entering formal employment (Bechange et al., 2024), while other studies emphasize employment inclusion policies and practices (Fefoame & Loryman, 2024; Usman et al., 2024). Research on the digital economy and women's employment participation (Ahmad et al., 2024; Tunçsiper, 2025) is complemented by the present findings: digital technology use is negatively associated with most employment categories relative to salaried employment but positively associated with self-employment involving permanent paid workers. Studies on digital skills and digital inequalities help situate these variations within a broader social context (Hetmańczyk, 2024; Roy et al., 2024). The contribution of this study lies in comparing seven employment-status categories among Indonesian women within a single multinomial regression model, rather than establishing social interactions or the causes of employment inequality.

These findings imply that employment policies should consider differences across women's employment categories rather than focusing solely on increasing the number of employed women. First, governments and employers could expand inclusive recruitment, reasonable workplace accommodations, and training opportunities for women with disabilities, given their lower representation in salaried employment. Second, local governments should develop affordable childcare services and flexible employment options, accompanied by appropriate protections, given the association between domestic workload and non-salaried employment. Third, education and digital literacy programs should be tailored to local employment needs because the relationship between digital technology use and employment status varies across categories. Fourth, job placement services and training programs should account for regional variations without assuming that all rural women face identical barriers. These programs should be periodically evaluated by examining changes in employment categories, income, workplace accessibility, and the coverage and sustainability of social protection. These recommendations are based on the observed patterns of association rather than policies whose effectiveness has been established by this study.

CONCLUSION

This study demonstrates that women's employment status in the 2021 Sakernas sample is associated with disability status, household responsibilities, education, digital technology use, and place of residence. Women with disabilities have a lower proportion of salaried employment and a higher proportion of self-employment than women without disabilities. In the regression analysis, disability is associated with a higher relative risk ratio for unpaid family work compared with salaried employment. Household-head status and domestic workload show associations with several non-salaried employment categories, whereas education is associated with lower relative risk ratios across all six alternative categories. Digital technology use is negatively associated with most employment categories but positively associated with self-employment involving permanent paid workers. Place of residence is also associated with differences in employment status. These patterns demonstrate variations in the relationships between individual characteristics, household conditions, and socioeconomic resources without establishing interactions among these factors or causal relationships.

Theoretically, this study extends the application of an intersectionality perspective as an interpretive framework for understanding women's employment inequality by simultaneously considering disability, household conditions, socioeconomic resources, and geographical location. Its contribution lies not in demonstrating interaction effects but in providing evidence of variations in the associations between these characteristics and seven employment-status categories within a single multinomial regression model. This approach emphasizes that employment status cannot be directly equated with economic empowerment or employment quality. Practically, the findings provide a basis for considering disability-inclusive recruitment, reasonable workplace accommodations, childcare support, context-appropriate education and digital literacy programs, and geographically targeted job placement services. The effectiveness of these measures requires further assessment through program evaluations and research addressing the needs of Indonesian women.

This study has several limitations. First, the cross-sectional nature of the 2021 Sakernas data means that the regression results indicate associations rather than establishing causal relationships. Second, the model does not test interactions between disability, domestic workload, and socioeconomic resources; therefore, intersectionality is employed as an interpretive framework. Third, the available indicators do not directly measure employer discrimination, workplace accessibility, caregiving intensity, employment quality, income, or

social protection. The measure of digital technology use also does not distinguish between access, skills, and productive utilization. Future research should employ longitudinal data, mixed-methods approaches, and models incorporating interaction terms, while exploring the experiences of women with disabilities and female household heads to develop a deeper and more contextual understanding of the mechanisms underlying employment inequality and employment choices.

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CONFLICT OF INTEREST STATEMENT

The authors declare that they have no competing interests.

DECLARATION OF AI USE

The authors used AI tools exclusively for translation and language editing. All research, data analysis, and interpretation were independently conducted by the authors, who assume full responsibility for the manuscript.

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AUTHOR CONTRIBUTIONS

Putri Meliza Sari: Conceptualization; Data Curation; Formal Analysis; Methodology; Visualization; Writing Original Draft. **Rowiyah Asengbaramae**: Conceptualization; Data Curation; Formal Analysis; Supervision; Validation. **Egi Kurniawan:** Formal Analysis; Supervision; Validation; Writing Review & Editing.

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