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Gender Differences in Employment Participation in Yogyakarta

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ABSTRACT

This study examines gender differences in employment participation in the Special Region of Yogyakarta using cross-sectional data from the 2022 National Socioeconomic Survey (Susenas). The analytical sample comprises 9,190 individuals. A linear probability model and a binary logit model are estimated for the full sample and separately for women and men. Education, household-head status, and the marital-status measure are positively associated with employment. Having a child aged 0–4 years is negatively associated with women's employment, while no corresponding association is found for men. The presence of an older household member, disability, rural residence, and higher local unemployment are also negatively associated with employment. Electronic media access is negatively associated with women's employment, whereas social media access is not statistically significant. Because the data are cross-sectional, the estimates represent conditional associations rather than causal effects. The findings support childcare provision, disability-inclusive employment policies, and stronger employment opportunities in rural areas.

Keywords: Employment Participation; Gender; Labor Supply; Susenas; Yogyakarta

JEL Classification: J16; J21; J22; C25

INTRODUCTION

Women's participation in paid employment remains substantially lower than men's in many developing economies (Klasen et al., 2021; Verick, 2014). Indonesia is a prominent example despite sustained economic growth, declining fertility, and improvements in women's educational attainment, women's labor-market participation has changed only gradually over the past two decades (Anggia et al., 2025; Nursyamsiah et al., 2025). Persistent gender disparities in employment can restrict household income, weaken women's economic autonomy, and prevent economies from making full use of their human capital (Kulkarni et al., 2024).

Employment decisions are shaped by interacting individual, household, and local labor-market conditions. Education may increase employability and expected earnings, while age captures differences in experience and life-cycle position (England et al., 2012). Household-head and marital status can strengthen the economic incentives to work, although their associations may differ by gender because women continue to perform a disproportionate share of unpaid domestic and care work (de Sanfeliú et al., 2014). The presence of young children or older household members may therefore constrain women's employment more strongly than men's.

The Indonesian literature likewise documents substantial heterogeneity in women's employment across education levels, marital statuses, household circumstances, and urban–rural locations. Ma (2010) show that changes in women's characteristics alone do not fully explain the long-term stagnation in women's employment participation. Schaner & Das (2016) further demonstrate that employment trajectories differ between younger urban women and women in rural areas, partly reflecting differences in access to wage employment and the declining role of informal and unpaid work.

This study focuses on the Special Region of Yogyakarta, where economic activities, educational opportunities, and labor-market conditions vary considerably between urban and rural areas (Hadioetomo et al., 2025; Manning, 2000). The analysis incorporates individual characteristics, household composition, housing conditions, media access, disability, and local labor-market indicators. Electronic and social media access are treated as supplementary indicators of access to information and communication rather than as comprehensive measures of digitalization.

The study contributes by comparing the correlates of employment participation for women and men using the same empirical specification. This comparison identifies whether household care responsibilities and other constraints are associated differently with employment across gender. The study does not claim to estimate causal effects; instead, it provides a descriptive multivariate assessment of conditional associations in the 2022 cross-section.

Accordingly, the study asks two questions. First, which individual, household, and local characteristics are associated with employment participation in Yogyakarta? Second, how do these associations differ between women and men? The answers can inform the design of gender-responsive employment policies, particularly policies concerning childcare, disability inclusion, and rural employment opportunities.

LITERATURE REVIEW

Individual and Household Determinants

Human-capital theory predicts that education raises productivity and expected earnings, thereby increasing the incentive and opportunity to enter employment (Verginio et al., 2025). Age is also associated with employment through accumulated experience and

changing life-cycle responsibilities (Singh, 2023). However, these relationships need not be linear or identical across gender. Household-head and marital status may increase employment because of financial responsibility, but gender norms can cause otherwise similar household circumstances to produce different employment outcomes for women and men.

Household care responsibilities are particularly important for women's employment. Young children increase the demand for time-intensive care, while the presence of older or disabled household members may generate additional caregiving needs. When affordable childcare and formal care services are limited, women are more likely than men to adjust their paid employment. International evidence consequently identifies unpaid care work, household composition, and prevailing gender norms as central constraints on women's participation in paid work (Klasen et al., 2021)

Gender and Spatial Heterogeneity

Economic development does not automatically eliminate gender differences in employment. Structural transformation can expand service-sector and wage-employment opportunities, but its benefits depend on the types and locations of jobs created. Verick (2014) show that the commonly assumed U-shaped relationship between development and women's employment participation is sensitive to model specification and data sources. This highlights the importance of examining household and local labor-market conditions directly rather than inferring women's employment outcomes from aggregate growth alone.

For Indonesia, Kharisma et al. (2020) identify important differences in employment patterns across poverty status, location, and sociodemographic groups. Rinaldo et al. (2026) document diverging trends between urban and rural women, while Sari et al. (2026) emphasize the combined roles of education, marriage, fertility, and labor demand. Rural residence may restrict access to diverse wage employment, and disability may further reduce employment opportunities through physical, institutional, and discriminatory barriers.

Access to electronic or social media may facilitate information acquisition and job search, but these indicators do not by themselves measure digital skills, productive internet use, or digital employment. Their empirical association with employment is therefore ambiguous. Based on the literature, this study expects education and household economic responsibility to be positively associated with employment, while care burdens, disability, rural residence, and weak local labor demand are expected to be negatively associated, especially among women.

RESEARCH METHOD

Data Sources and Variable Measurement

This study uses cross-sectional microdata from the 2022 National Socioeconomic Survey (Susenas), produced by Statistics Indonesia. Susenas contains information on demographic characteristics, education, employment, health, household composition, housing conditions, and access to information and communication media. The source file contains approximately 3,996 households and 13,092 individuals in the Special Region of Yogyakarta. After applying the study's analytical restrictions and complete-case requirements, the estimation sample reported in Table 1 comprises 9,190 individuals.

The outcome equals 1 when an individual is recorded as employed during the survey reference period and 0 otherwise. It is therefore interpreted as employment participation rather than labor force participation, because the latter would also include unemployed

individuals who are actively seeking or available for work. Explanatory variables capture individual characteristics, household composition, access to media, housing conditions, disability, rural residence, and local unemployment. Table 1 summarizes the measures used in the estimation.

Table 1. Variables Used to Explain Employment Participation

Level of observation	Variable	Variable definition
Individual	Age	Age in years
	Education level	Educational-attainment measure used in the estimation
	Household-head status	Equals 1 if the individual is the household head; 0 otherwise
	Marital status	Marital-status measure used in the estimation
	Electronic media access	Equals 1 if the individual accesses television or radio; 0 otherwise
	Social media access	Equals 1 if the individual accesses social media; 0 otherwise
Local area	Household size	Number of household members
	Child aged 0–4	Number of household members aged 0–4 years
	Child aged >10	Older-child measure used in the estimation
	Older household member	Presence of an older person in the household
	Disability	Equals 1 if the individual has functional difficulties that limit daily activities; 0 otherwise
	Adequate housing	Index or indicator of adequate housing conditions
	Rural residence	Equals 1 for a rural place of residence; 0 for urban residence
	Rural unemployment	Local unemployment measure used in the estimation

Estimation Strategy

Employment participation is first estimated using a linear probability model (LPM):

$$y_i = \beta_0 + \sum_{j=1}^{k} \beta_j x_{ji} + \varepsilon_i \quad (1)$$

where Y_i is the binary employment indicator and X_i contains the individual, household, and local characteristics listed in Table 1. The coefficient β_j measures the conditional change in employment probability associated with a one-unit change in the corresponding regressor. The model is estimated for the full sample and separately for women and men.

Because an LPM can generate fitted values outside the unit interval and imposes constant marginal effects, a binary logit model is estimated as a nonlinear comparison (Epaphra & Kiwia, 2021).

The logit specification is expressed as:

$$log[P(Y_i = 1 \mid X_i) / \{1 - P(Y_i = 1 \mid X_i)\}] = \alpha + X_i'\beta. \quad (2)$$

For ease of interpretation, the logit results are reported as average marginal effects (AMEs). The estimates describe conditional associations and should not be interpreted as causal because the analysis uses a single cross-section and may be affected by omitted characteristics and reverse selection. All estimations were conducted using Stata 17.0.

RESULTS

Estimation Results

Table 2 presents the linear probability model (LPM) coefficients and logit average marginal effects (AMEs). The analytical sample contains 9,190 individuals, comprising 4,589 women and 4,601 men. The LPM R-squared is 0.317 for the full sample, 0.295 for women, and 0.340 for men.

Age is positive and statistically significant in the full-sample LPM (0.00100, $p < 0.01$), but its logit AME is not significant. For women, age is positive and significant in both the LPM (0.00149, $p < 0.05$) and logit model (0.00111, $p < 0.05$). For men, age is significant in the LPM (0.00208, $p < 0.01$) but not in the logit model.

Education level is positive and significant at the 1% level in every specification. The full-sample estimates are 0.0629 in the LPM and 0.0534 in the logit model. The corresponding estimates are 0.0563 and 0.0527 for women and 0.0720 and 0.0604 for men. Household-head status is also positive and significant across models: the logit AME is 0.201 for the full sample, 0.134 for women, and 0.0385 for men. The marital-status measure remains positive and significant, with logit AMEs of 0.184, 0.177, and 0.239 for the full, women's, and men's samples, respectively.

Electronic media access has a negative full-sample association in both the LPM (−0.0234, $p < 0.05$) and logit model (−0.0174, $p < 0.10$). The negative association is concentrated among women, with estimates of −0.0444 and −0.0449, both significant at the 1% level. Neither estimate is significant for men. Social media access is not statistically significant in any specification.

Table 2. Linear Probability and Logit Estimates of Employment Participation

	(1) Full sample (LPM)	(2) Full sample (Logit AME)	(3) Women (LPM)	(4) Women (Logit AME)	(5) Men (LPM)	(6) Men (Logit AME)
VARIABLES	Employment participation					
Age	0.00100***	9.36e-06	0.00149**	0.00111**	0.00208***	0.000643
	(0.000382)	(0.000370)	(0.000578)	(0.000558)	(0.000537)	(0.000525)
Education level	0.0629***	0.0534***	0.0563***	0.0527***	0.0720***	0.0604***
	(0.00452)	(0.00433)	(0.00672)	(0.00656)	(0.00586)	(0.00554)
Household-head status	0.187***	0.201***	0.149***	0.134***	0.0435**	0.0385**
	(0.0101)	(0.0102)	(0.0270)	(0.0258)	(0.0194)	(0.0196)
Marital status	0.204***	0.184***	0.191***	0.177***	0.285***	0.239***
	(0.0108)	(0.00964)	(0.0183)	(0.0173)	(0.0179)	(0.0163)
Electronic media access	-0.0234**	-0.0174*	-0.0444***	-0.0449***	-0.00602	0.00491
	(0.0102)	(0.0102)	(0.0150)	(0.0150)	(0.0133)	(0.0136)
Social media access	0.00863	-4.88e-05	0.00365	-0.00706	0.0235	0.0205
	(0.0148)	(0.0151)	(0.0219)	(0.0221)	(0.0192)	(0.0199)
Household size	-0.00397	-0.00331	-0.00980	-0.00883	0.0127	0.0148
	(0.00898)	(0.00901)	(0.0130)	(0.0130)	(0.0119)	(0.0129)
Child aged 0–4	-0.0269**	-0.0325**	-0.0664***	-0.0638***	0.0159	0.0239
	(0.0129)	(0.0130)	(0.0189)	(0.0189)	(0.0170)	(0.0197)
Child aged >10	0.0138	0.0172*	0.0140	0.0137	-0.0163	-0.0178
	(0.00951)	(0.00956)	(0.0139)	(0.0140)	(0.0127)	(0.0137)
Older household	-0.127***	-0.0986***	-0.154***	-0.177***	-0.225***	-0.140***

member	(0.0371)	(0.0377)	(0.0538)	(0.0614)	(0.0514)	(0.0462)
Disability	-0.305***	-0.325***	-0.221***	-0.282***	-0.413***	-0.318***
	(0.0434)	(0.0514)	(0.0709)	(0.0950)	(0.0519)	(0.0507)
Adequate housing	6.68e-05	0.00496	0.0124	0.0137	-0.0146	-0.00680
	(0.0148)	(0.0145)	(0.0224)	(0.0222)	(0.0188)	(0.0180)
Rural residence	-0.323***	-0.513***	-0.409***	-0.611***	-0.241***	-0.380***
	(0.0108)	(0.0243)	(0.0173)	(0.0397)	(0.0132)	(0.0273)
Rural unemployment	-0.628***	-0.750***	-0.767***	-0.948***	-0.435***	-0.504***
	(0.0152)	(0.0245)	(0.0223)	(0.0395)	(0.0205)	(0.0289)
Constant	0.485***		0.584***		0.424***	
	(0.0306)		(0.0465)		(0.0390)	
Observations	9,190	9,190	4,589	4,589	4,601	4,601
R-squared (LPM only)	0.317		0.295		0.340	

Source: Authors' calculations based on Susenas 2022

Standard errors are reported in parentheses.

*** p < 0.01, ** p < 0.05, * p < 0.10

Household size is not statistically significant. Having a child aged 0–4 years is negatively associated with employment in the full sample (−0.0269 in the LPM and −0.0325 in the logit model) and among women (−0.0664 and −0.0638); all four estimates are statistically significant. The corresponding estimates for men are positive but not significant. The older-child measure is generally insignificant, except for a weakly significant full-sample logit AME of 0.0172.

The presence of an older household member is negative and significant at the 1% level in all models. Its logit AME is −0.0986 for the full sample, −0.177 for women, and −0.140 for men. Disability also has a large negative association: the logit AMEs are −0.325 for the full sample, −0.282 for women, and −0.318 for men. Adequate housing is not statistically significant in any specification.

Rural residence is negative and significant at the 1% level throughout, with logit AMEs of −0.513 for the full sample, −0.611 for women, and −0.380 for men. The rural-unemployment measure is likewise negative and significant, with logit AMEs of −0.750, −0.948, and −0.504, respectively. These magnitudes should be interpreted according to the exact coding and scale of the local unemployment variable.

DISCUSSION

Human Capital and Household Responsibility

The consistently positive association between education and employment is compatible with the human-capital proposition that education improves productivity, employability, and expected returns to work. The stronger education coefficients for men may reflect gender differences in how educational attainment is translated into employment opportunities. Household-head status is more strongly associated with women's employment than men's, suggesting that economic responsibility may be particularly important for women who head households. The marital-status estimates should nevertheless be interpreted only after the underlying coding and reference category have been stated explicitly.

The results for young children reveal the clearest gender difference. A child aged 0–4 years is associated with a reduction of approximately 6.4–6.6 percentage points in women's employment probability, whereas the association for men is not statistically significant. This pattern is consistent with evidence that women continue to assume a disproportionate share of childcare and unpaid domestic work (Adeyeye, 2021; Ervin et

al., 2022; Kimbal & Maru, 2021; Sari et al., 2022; Yuniashri et al., 2022). However, the cross-sectional estimates cannot distinguish childcare constraints from employment selection, household preferences, or unobserved access to care services.

Household Constraints and Spatial Disparities

The negative coefficients on older household members may reflect additional care needs, but they may also capture broader differences in household structure and economic circumstances. The association is found for both women and men and therefore should not be attributed exclusively to women's caregiving. Disability has the largest and most consistent individual-level negative association, highlighting potential barriers related to accessibility, workplace accommodation, skills, transportation, and employer discrimination.

Rural residence and the rural-unemployment measure are strongly negatively associated with employment. This is consistent with the more limited availability and diversity of wage employment in rural labor markets documented in previous Indonesian studies (Alisjahbana & Manning, 2006; Astuti, 2023; Fattah et al., 2025). Nevertheless, the unusually large coefficient on rural unemployment requires caution. Its precise unit, geographical level, and construction must be reported before the magnitude can be interpreted substantively.

Media Access and Employment

The media variables do not support a broad claim that digitalization increases employment participation. Electronic media access is negatively associated with women's employment, while social media access is statistically insignificant. Television or radio access is not a direct measure of digitalization, and social media access does not indicate digital skills, job-search intensity, online work, or productive technology use. These estimates may also reflect reverse selection or unobserved household characteristics. A study focused specifically on digitalization would therefore require richer indicators and an identification strategy capable of addressing endogeneity.

Finally, the LPM R-squared values indicate that the observed covariates explain only part of the variation in employment. Unmeasured factors may include wages, occupational preferences, local vacancies, transportation, childcare availability, gender norms, health severity, and job quality. The findings should consequently be read as conditional correlations that identify relevant patterns rather than as estimates of policy effects.

CONCLUSION

This study examines gender differences in employment participation in the Special Region of Yogyakarta using the 2022 Susenas. Education, household-head status, and the marital-status measure are positively associated with employment, whereas disability, rural residence, and weaker local labor-market conditions are negatively associated. The presence of a child aged 0–4 years is negatively associated with women's employment but not men's, highlighting a gendered relationship between childcare responsibilities and paid work. Social media access is not significantly associated with employment, and the media indicators do not support broad conclusions about the benefits of digitalization.

The findings support policies that expand affordable childcare, strengthen disability-inclusive recruitment and workplace accommodation, and improve access to suitable employment in rural areas. Education and employment-support programs should be designed with women's care responsibilities in mind. Policies intended to use digital technology to improve employment should focus on digital skills, job-search platforms,

and productive internet use rather than assuming that general media access automatically improves labor-market outcomes.

The study has several limitations. The cross-sectional design identifies associations rather than causal effects; employment and media access may be jointly determined; and Susenas does not directly measure gender norms, job quality, digital skills, or the availability of childcare and suitable vacancies. Future research should use longitudinal or quasi-experimental designs, apply the survey weights and design variables appropriate to the data, examine more detailed employment categories and working hours, and incorporate richer measures of digital access and use.

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DECLARATION OF CONFLICTING INTERESTS
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