Determinants of Work Participation in Jambi Province: Analysis of Gender and Education Interaction

Evi Adriani[1]*, Ali Fahmi[2], Jonner Simarmata[3]
[1.3]Batanghari University, [2]Muhammadiyah University of Jambi
[1]evi.adriani@unbari.ac.id*, [2]alifahmi1969@gmail.com, [3]jonnerunbari@gmail.com

ABSTRACT

Participation in the labor market is a crucial indicator of community involvement in economic development; however, various barriers still hinder individuals from fully engaging in the labor force. Structural factors such as education and gender norms play a significant role in shaping labor force participation patterns. This study aims to analyze the determinants influencing labor force participation in Jambi Province, with a particular focus on the roles of education and gender. Employing a quantitative approach and logistic regression analysis, this research uses data from the 2023 National Labor Force Survey (Sakernas). The findings reveal significant differences in labor force participation between men and women, influenced by educational attainment and marital status. The study also found that women with higher education levels tend to be more active in the labor market, although marriage can be a constraint. These findings are expected to provide insights for policymakers in designing more inclusive programs that empower women and reduce gender disparities in the labor market in Jambi Province.

INTRODUCTION

Labor force participation is a fundamental indicator for assessing the social and economic dynamics of a region. Not only does it reflect the population's productive capacity, but the level of labor participation is also closely correlated with poverty, inequality, and the inclusiveness of economic development (ILO, 2022). In the context of a developing country like Indonesia, structural factors such as education and gender norms play a crucial role in shaping these participation patterns, both at the national and regional levels. The Labor Force Participation Rate (LFPR) in Jambi Province, reported at 68.75% in August 2023, reflects significant differences influenced by education and gender, in line with broader trends observed in Indonesia. Higher education attainment is positively correlated with increased participation; for example, university graduates in Jambi showed a LFPR of 86.13%, while those with only primary education showed a much lower rate of 70.17% (Junaidi & Zulfanetti, 2016; Affandi et al., 2019). This trend is further supported by findings that education significantly influences labor force participation

rates, as seen in studies from other regions such as West Sumatra (Fuada & Amar, 2023). Furthermore, the agricultural sector remains a major employer, especially for individuals with low education, emphasizing the need to improve access to education to increase labor market engagement (Riani et al., 2024; Wasono et al., 2020).

Labor force participation in Indonesia shows a significant gender gap, with men participating at approximately 85% compared to women's participation of approximately 51–63%, depending on the context (Hayati et al., 2024; Iffah, 2024). Structural barriers, including unpaid household responsibilities and entrenched gender norms, hinder women's economic participation (Hayati et al., 2024; Craig, 2017). However, education has emerged as a crucial factor in reducing these barriers; for example, women with a bachelor's degree in Jambi Province achieved an LFPR of 80.83%, approaching the male participation rate (Hayati et al., 2024). Studies show that higher education not only increases women's earning potential but also empowers them in household economic decisions (Hayati et al., 2024; Iffah, 2024). This suggests that addressing educational access and social norms can significantly increase female labor force participation and reduce gender-based economic inequality in Indonesia (Moore & William, 2021; Behnert, 2022).

Theoretically, an individual's decision to participate in the labor market is influenced by various factors, as outlined in human capital theory (Becker, 1964), labor supply theory (Mincer, 1974), and gender role theory (Akerlof & Kranton, 2000). These theories emphasize the importance of education as a determinant of productivity, as well as the influence of social norms that shape gender roles within the household and society. In the Jambi context, there remains a significant gap in access to higher education between men and women, potentially hindering women's optimal participation in the formal sector.

This phenomenon highlights the importance of examining the interaction between education and gender in explaining labor participation patterns. Several international studies confirm that increasing women's education levels can narrow the participation gap (Jugheli, 2023; Marjanovic et al., 2023), but its effectiveness depends heavily on the social context, including cultural norms and household structure. Furthermore, marital status and the presence of young children often act as barriers to participation, particularly for women burdened with dual roles as workers and caregivers (Gaunt & Deutsch, 2024).

Despite the importance of this issue, studies on the interaction between education and gender in influencing work participation at the provincial level, particularly in Jambi, are still limited. Most national literature only analyzes the determinants partially, without considering the interaction effects and dynamic local contexts.

Based on this background, this study aims to quantitatively analyze how education and gender variables, along with their interactions, influence individual employment opportunities in Jambi province. Using a logistic regression approach to the 2023 National Labor Force Survey (Sakernas) data, this study is expected to fill the literature gap and provide an empirical basis for formulating employment policies that are more gender-responsive and contextual to regional conditions.

LITERATURE REVIEW

Gender and Labor Force Participation

Gender remains a central determinant of labor force participation across developing and emerging economies. Recent empirical studies emphasize that labor market participation is strongly shaped by socially constructed gender roles, household responsibilities, and unequal access to productive resources (Marjanovic et al., 2023; Rodríguez-Planas & Tanaka, 2021).

In developing regions, women's labor force participation is often constrained by unpaid care work, cultural norms, and limited institutional support such as childcare facilities and flexible working arrangements (Gaunt & Deutsch, 2024). However, recent evidence suggests a gradual shift, where women increasingly participate in formal employment, particularly when labor markets offer flexibility and education-based opportunities (Llamas, 2022; Pöyliö & McMullin, 2024).

Studies using micro-level data demonstrate that gender gaps in participation are not uniform; instead, they interact with education, marital status, and household composition (Marjanovic et al., 2023). This

implies that gender effects should be analyzed in interaction with other socio-economic factors rather than as a standalone determinant.

Hypothesis 1 (H1):
Gender significantly influences labor force participation in Jambi Province.

Education and Labor Force Participation

Human capital theory posits that education enhances productivity, employability, and expected wages, thereby increasing labor force participation (Deming, 2022). Recent international studies confirm that higher educational attainment significantly raises labor market participation probabilities, especially in developing regions (Albarico & Galigao, 2024; Woessmann, 2025).

Empirical findings from Asia and emerging economies indicate that individuals with tertiary education exhibit stronger labor market attachment, lower inactivity rates, and greater resilience to labor market shocks (Plavgo, 2023; Portugal et al., 2024). Conversely, individuals with only basic education are more vulnerable to labor market exclusion and informal employment.

Importantly, education does not only affect participation directly but also mediates individuals' ability to balance work and family responsibilities, particularly for women (Lai, 2023).

Hypothesis 2 (H2):
Higher educational attainment increases the likelihood of labor force participation.

Interaction between Gender and Education

Recent labor economics literature increasingly emphasizes intersectional analysis, highlighting that the impact of education on labor force participation differs substantially by gender (Batulicin, 2022; Cao et al., 2023).

Evidence suggests that returns to education in terms of labor market participation are often higher for women than for men, particularly at the tertiary level. Higher education enables women to access better-quality jobs, reduce vulnerability to discrimination, and overcome traditional gender norms that restrict labor market engagement (Lai, 2023; Marjanovic et al., 2023).

Conversely, at lower levels of education, men tend to dominate labor force participation due to their greater presence in physically intensive and informal sectors (Bai & Yan, 2024). These findings suggest a non-linear and gender-specific effect of education on labor participation.

Hypothesis 3 (H3):
The effect of education on labor force participation differs by gender.

Marital Status, Childcare, and Gendered Labor Supply

Household structure and marital status remain critical determinants of labor supply, particularly for women. Recent studies confirm that marriage and childcare responsibilities significantly reduce women's labor force participation, while men's participation often increases due to breadwinner norms (Li & Chen, 2024; Gaunt & Deutsch, 2024).

The presence of young children intensifies gender disparities, as women disproportionately bear caregiving responsibilities, limiting their labor market attachment (Pöyliö & McMullin, 2024). These dynamics are particularly pronounced in regions with limited childcare infrastructure, such as many Indonesian provinces.

Hypothesis 4 (H4):
Marital status and the presence of young children reduce labor force participation, with stronger effects for women.

Training, Urbanization, and Labor Market Access

Skill training and urban residence are important enabling factors for labor market participation. Recent evidence shows that job training programs significantly increase employability and labor force participation, particularly in developing economies (Carranza & McKenzie, 2024).

Urban areas provide greater labor market access, diversified employment opportunities, and higher returns to education, resulting in higher participation rates compared to rural areas (Neto & Silva, 2023; Drejerska, 2024). However, gender disparities persist even in urban settings, reinforcing the need to consider interaction effects.

Hypothesis 5 (H5):
Training participation and urban residence increase labor force participation.

Research Framework

Education, training, and demographic characteristics directly influence individuals' decisions to participate in the labor market. Gender acts as a moderating factor that shapes how education and household responsibilities translate into labor market engagement. Higher education is expected to reduce gender disparities by increasing women's labor force participation, while household responsibilities such as marriage and childcare are expected to widen gender gaps. The research framework chart can be seen in Figure 1 below:
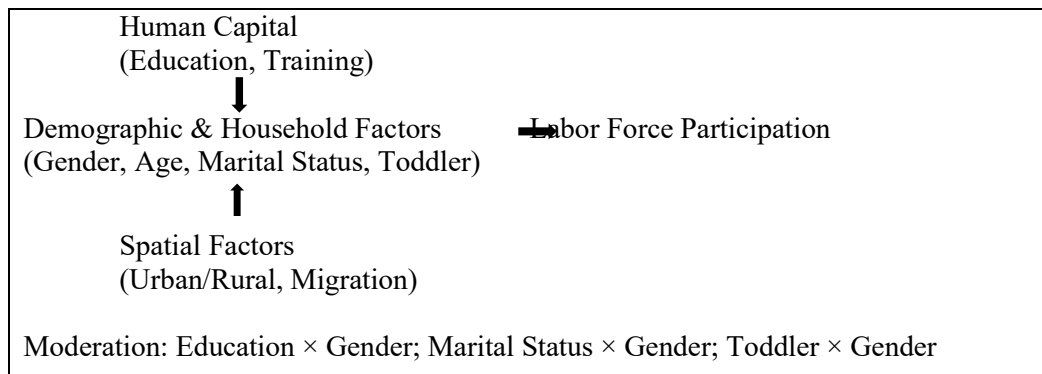
Figure 1: The Research Framework Chart

METHODS

Types of research

This research is quantitative and uses a logistic regression approach. This approach was chosen because the objective of the study was to analyze the relationship between several independent variables and the dependent variable, labor force participation, in Jambi Province. Logistic regression was used because the dependent variable in this study is binary categorical, namely whether an individual is working or not working (0 = Not Working, 1 = Working with wages/income).

Data and Research Variables

The data used in this study comes from the 2023 National Labor Force Survey (Sakernas) for Jambi Province. The data includes information on the workforce, demographic characteristics, education, course experience, marital status, and respondents' residence.

The variables used in this study are divided into two categories, namely dependent variables and independent variables.

Table 1. Operational Research Variables

Variables	Operational Definition	Indicator	Measurement Scale
Work participation	Individual involvement in economic activities by receiving wages/income.	- Not working/family worker (0) - Work and receive wages/income (1)	Nominal
sex	Men and women.	- Male (1) - Female (0)	Nominal
marital	Marital status of the individual.	- Married/Ever married (1) - Not married (0)	Nominal
urban	The geographic location where an individual resides.	- Urban (1) - Rural (0)	Nominal
migrant	The migration status of an individual during a specific period.	- Migrants (1) - Non-migrants (0)	Nominal
training	Experience of courses or work training.	- Have taken courses/training (1) - Never taken a course/training (0)	Nominal
educ1	The last level of education is elementary education.	- Basic Education (1) - Others (0)	Nominal
educ2	Secondary education level.	- Secondary Education (1) - Others (0)	Nominal
educ3	The last level of education is higher education.	- Higher Education (1) - Others (0)	Nominal
toddler	The presence of toddlers in the household.	- There is a toddler (1) - No toddlers (0)	Nominal
school	Individual status in formal education.	- Still in school (1) - No longer attending school (0)	Nominal
age	Individual age in years.	- Age (in years)	Ratio
agesqr	The square value of an individual's age.	- Age square	Ratio
Variable Interaction	The combined influence of two specific variables on the opportunity for work participation.	- Example: Primary Education * Gender	-

Method of analysis

To analyze the relationship between independent variables and labor force participation, this study used binary logistic regression. This method is suitable for binary categorical data and is used to model the probability of success (in this case, labor force participation) based on the independent variables.

The binary logistic regression model for this study can be written as follows:

$$log\left(\frac{P(y=1|X)}{1-P(y=1|X)}\right) = \beta_0 + \beta_1 sex + \beta_2 marital + \beta_3 urban + \beta_4 migran + \beta_5 training$$

$$+\beta_6 educ1 + \beta_7 educ2 + \beta_8 educ3 + \beta_9 migransu + \beta_{10} toddler + \beta_{11} school$$

$$+\beta_{12} age + \beta_{13} agesqr + \beta_{14} educ1 * sex + \beta_{15} educ2 * sex + \beta_{16} educ3 * sex + \beta_{17} sex * toddler + \beta_{18} school * sex + \beta_{19} marital * sex + \beta_{20} urban * sex + \beta_{21} migransu * sex$$

Significance Test

To test the significance of each independent variable in the logistic regression model, the Wald test is used. This test is used to determine whether the regression coefficient is significantly different from zero (no effect). A p-value lower than the significance level (for example, $p < 0.05$) indicates that the variable has a significant effect on labor force participation.

Odds Ratio (OR)

After the logistic regression model is calculated, the Odds Ratio (OR) is calculated for each independent variable. The odds ratio describes the change in odds (relative likelihood) of labor force participation that occurs when the independent variable changes by one unit. If the OR > 1, it means the factor increases the chance of labor force participation; if the OR < 1, it decreases the chance of participation.

RESULTS AND DISCUSSION

Data Description

The data used in this study is the 2023 National Labor Force Survey (Sakernas), which covers all provinces in Indonesia, with a particular focus on Jambi Province. This data provides a comprehensive overview of labor force participation (PAK) in Jambi Province, as well as information on the variables that influence this participation.

Based on Table 2, it is known that the average age for the group who work for wages is 41.20 years, while the group without work or family workers has an average age of 36.39 years. In terms of demographic composition, the group of workers with wages consists of 69.25% men and 30.75% women. Meanwhile, in the group without work or family workers, 73.54% are women and 26.46% are men. In the group who work for wages, the majority (82.90%) are married or have been married, while 17.10% are not married. In other groups, 62.88% are married, while 37.12% are not married.

Table 2. Distribution of Research Variables

Variables	Unemployed/Family Worker	Working for Wages
Age (Mean)	36.39	41.2
Female gender, %)	73.54	30.75
Male gender, %)	26.46	69.25
Marital Status (Unmarried, %)	37.12	17.1
Marital Status (Married/Ever Married, %)	62.88	82.9
Residential Area (Rural, %)	63.67	64.15

Residential Area (Urban, %)	36.33	35.85
Migration Status (Non-Migrant, %)	97.6	97.68
Migration Status (Migrants, %)	2.4	2.32
Courses/Training (Never, %)	87.74	78.85
Courses/Training (Ever, %)	12.26	21.15
Secondary Education (%)	69.76	67.04
Higher education (%)	6.21	14.73
There are Toddlers in the Household (%)	26.06	24.51
School Participation (No Longer Attending School, %)	78.88	98.62

Source: 2023 Sakernas data, processed

The group with paid employment lived more in rural areas (64.15%) than in urban areas (35.85%). A similar trend was observed for the group without work or family workers, with 63.67% living in rural areas. When broken down by migration status, the majority of paid workers were non-migrants (97.68%), with only 2.32% migrants. A similar trend was observed for the group without work, with 97.60% non-migrants. Within the employed group, 21.15% had attended courses or training, while 78.85% had not. Among the group without work, only 12.26% had attended courses, with the majority (87.74%) having not.

Education is one of the key factors that differentiates them. Among wage-earners, 98.62% are no longer in school, and among those without jobs, 78.88% are also no longer in school. Breaking down by diploma, wage-earners have a secondary education distribution of 67.04% and a tertiary education of 14.73%. Among those without jobs, secondary education accounts for 69.76% and a tertiary education accounts for 6.21%.

The presence of toddlers in households in the group of workers with wages reached 24.51%, while in the group without work, 26.06% of them had toddlers.

Model Suitability Evaluation

Testing the feasibility of the data and regression model is the initial step in conducting a logistic regression model analysis. Data feasibility testing is performed using the Omnibus Test of Model. If the sig. value is <0.05 (alpha), then the data can be considered feasible. As shown in Table 3, the test results indicate that the Chi-square value is 1,330,087.34 (df = 21, sig. value (p value) <0.05). Thus, the overall model is significant in explaining the dependent variable; in other words, the independent variables used make a significant contribution to the model or to the prediction of work participation. Building on this result, it is important to examine the explanatory power of these variables.

The explanatory power of the independent variables is assessed using the Cox & Snell R-Square and Nagelkerke R-Square values from the logistic regression output. As shown in Table 3, the Cox & Snell R-Square is 0.384, and the Nagelkerke R-Square is 0.515. This indicates that approximately 51.5% of the variation in work participation decisions is explained by the model.

Table 3. Model Suitability Evaluation

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	1330087,341	21	,000
	Block	1330087,341	21	,000
	Model	1330087,341	21	,000

Model Summary			
	-2 Log likelihood	Cox&Snell R Square	Nagelkerke R Square
Step 1	2423467,51ᵃ	,384	**,515**

Source: SPSS output, modified.

The model's predictive accuracy was tested in this study using a classification table. Based on the classification table in Table 4, the overall prediction accuracy was 78.1%. Therefore, the model is quite good at predicting whether someone will work for wages/income.

Table 4. Model Prediction Accuracy

Classification Table			
	Observed	Predicted	Percentage Correct
Step 1	Work and receive wages/income	Unemployed/Family Worker	80.0
		Work and receive wages/income	76.6
	Overall Percentage		**78.1**

Source: SPSS Output

Logistic Regression Estimation Results

Binary logistic regression analysis was conducted to determine the effect of each independent variable on labor force participation in Jambi Province. The estimated results of the logistic regression model are shown in Table 5 below.

Table 5. Logistic Regression Model Estimation Results

Variables	B	SE	Wald	Sig.	Exp(B)	Significance
Gender (1 = Male)	-0.783	0.018	1817,635	0.000	0.457	Significant (p < 0.05)
Marital Status (1 = Married/Ever Married)	-0.646	0.008	7251.910	0.000	0.524	Significant (p < 0.05)
Residential Area (1 = Urban)	0.065	0.004	235,299	0.000	1,067	Significant (p < 0.05)
Migration Status (1 = Migrant)	-0.269	0.011	612,348	0.000	0.764	Significant (p < 0.05)
Course/Training (1 = Ever)	0.431	0.005	8812.163	0.000	1,539	Significant (p < 0.05)
Basic Education (1 = Basic Education)	-0.529	0.006	7500.940	0.000	0.589	Significant (p < 0.05)
Secondary Education (1 = Secondary Education)	-0.142	0.007	418,879	0.000	0.868	Significant (p < 0.05)
Higher Education (1 = Higher Education)	0.965	0.008	13367.429	0.000	2,624	Significant (p < 0.05)
Lifetime Migration Status (1=migrant)	-0.167	0.004	1376,391	0,000	0.846	Significant (p < 0.05)
There is a toddler in the household (1 = Yes)	-0.323	0.005	4102.603	0.000	0.724	Significant (p < 0.05)

Variables	B	SE	Wald	Sig.	Exp(B)	Significance
School Participation (1 = No Longer Attending School)	1,388	0.012	14448.220	0.000	4,007	Significant (p < 0.05)
Age	0.217	0.001	88306.830	0.000	1,242	Significant (p < 0.05)
Age Squared	-0.003	0.000	104611.924	0.000	0.997	Significant (p < 0.05)
Basic Education * Gender	0.870	0.011	6436.678	0.000	2,388	Significant (p < 0.05)
Secondary Education * Gender	0.361	0.011	1007,570	0.000	1,435	Significant (p < 0.05)
Higher Education * Gender	-1.133	0.014	6596.965	0.000	0.322	Significant (p < 0.05)
Gender * There are toddlers	0.969	0.010	10041.557	0.000	2,636	Significant (p < 0.05)
School Participation * Gender	1,200	0.016	5363.589	0.000	3,320	Significant (p < 0.05)
Marital Status * Gender	2,404	0.009	69731.543	0.000	11,063	Significant (p < 0.05)
Gender * Place of Residence	-0.375	0.007	2797.873	0.000	0.687	Significant (p < 0.05)
Lifetime Migration Status * Gender	0.031	0.008	15,968	0,000	1,032	Significant (p < 0.05)
Constant	-5,312	0.016	105524.985	0.000	0.005	Significant (p < 0.05)

Source: SPSS output

Interpretation of Regression Coefficients

The logistic regression model shows that all variables in the model are statistically significant at the 1% significance level ($p < 0.001$), meaning that their contribution to the probability of paid work can be considered very strong in the context of the observed population.

The gender variable shows a negative coefficient of -0.783 and Exp(B) = 0.457. This indicates that men are approximately 54.3% less likely to work than women, after controlling for other variables. This finding seems paradoxical when viewed from general descriptive statistics in Indonesia, which show that men's labor force participation rates are consistently higher than women's. This indicates that there is an interaction or mediating influence from other variables, such as marital status, presence of children, and education, that influence the direction of this relationship.

Furthermore, the marital status variable also has a significant negative relationship (coefficient -0.646; Exp(B) = 0.524), meaning that those who are or have been married have a 47.6% lower chance of working compared to those who have never been married. This effect may be mediated by the division of domestic roles within the household, especially for women, where childcare and housework responsibilities often create a double burden that reduces work participation.

The residence variable shows a positive effect (coefficient 0.065; Exp(B) = 1.067), which is theoretically in line with the hypothesis that urban areas provide more job opportunities, both in the formal and informal sectors. Meanwhile, migration status shows counter-intuitive results with a

negative coefficient (- 0.269; Exp(B) = 0.764), where migrants actually have lower job opportunities than non-migrants. These results indicate that migration does not always have a positive impact on engagement in paid employment, possibly due to limited social networks or administrative barriers in accessing jobs in the destination area.

The training or course variable (coefficient 0.431; Exp(B) = 1.539) has a positive effect, supporting the human capital theory, which states that improving skills through training increases an individual's probability of being absorbed by the labor market. However, the effects of primary and secondary education are negative on employment opportunities (Exp(B) = 0.589 and 0.868, respectively), indicating that this level of education is not sufficient to provide high competitiveness in the labor market. In contrast, higher education has a very strong effect with Exp(B) = 2.624, indicating a more than double chance of employment compared to those who have not completed school. This confirms that only higher education is able to open up significant employment opportunities, perhaps because of its match with the demands of the formal and professional sectors.

The age variable exhibits a non-linear relationship: a positive linear coefficient (0.217) and a negative quadratic coefficient (-0.003), indicating that employment opportunities increase at young, productive ages, then decline after reaching peak productive age. This is in line with life cycle theory in labor economics.

Education × Gender Interaction

The interaction between primary education and male education shows Exp(B) = 2.388, meaning that men with primary education are 2.4 times more likely to be employed than women with the same educational background. A similar trend is seen in the interaction between secondary education and male education, with Exp(B) = 1.435. This indicates that at both lower and secondary levels of education, men remain more advantaged in accessing wage employment. This can be attributed to the male-dominated nature of unskilled and informal work in the agricultural and construction sectors, and the limited acceptance of women in these sectors due to the social construction of work roles.

However, this pattern changes completely when we move to higher education. The interaction term of higher education × male actually produces a negative coefficient of -1.133 (Exp(B) = 0.322). This means that the positive effect of higher education on employment opportunities is stronger for women than for men. In other words, women with higher education have significantly higher employment opportunities than men with the same level of education. This result is consistent with findings in various literature that higher education can transcend social gender barriers, and that highly educated women are more easily accepted into professional, administrative, or service sectors that value intellectual competence over physical strength or informal networks (Polenghi & Fitzgerald, 2020).

Discussion

Gender Variable

The main finding of the analysis indicates that women have greater employment opportunities than men after all other variables are taken into account. At first glance, this seems contradictory to general data from the Statistics Indonesia (BPS), which shows that men consistently have a higher labor force participation rate (TPAK). However, when controlling for education, marital status, and parenting status are included in the model, women's position becomes more competitive, even superior in some segments.

These results can be linked to modern gender role theory (Remery et al., 2022), which states that urban and educated women tend to internalize the value of professional work as part of their identity. Furthermore, according to the preference for flexibility theory (Rinaldo, 2023), educated women tend to choose sectors that allow flexibility and stability, such as education, health, and administrative sectors that remain active even during economic crises or pandemics. This could explain why, in a controlled population context, women appear to have higher employment opportunities.

On the other hand, the low employment opportunities for men in this model can be attributed to "male employment vulnerability"—a phenomenon that begins to emerge in large cities when traditional job

sectors (such as manufacturing or agriculture) stagnate, and men are less adaptable to the service or digital sectors. The phenomenon of "male employment vulnerability" is significantly influenced by the transition from traditional sectors like manufacturing to a service-oriented and digital economy, which disproportionately affects men, especially those from lower socioeconomic backgrounds. Many of these men lack the necessary interpersonal skills and emotional labor capabilities required in the service industry, leading to increased unemployment and underemployment rates among them (Robertson et al., 2018). This shift not only reduces their economic prospects but is also associated with adverse mental health outcomes, as unemployment challenges their identity as primary breadwinners, resulting in increased psychological distress (Whitley, 2021).

Education Variable

The analysis confirms the claim that only higher education consistently has a positive impact on employment opportunities (Hadia et al., 2019), while primary and secondary education appear insufficient as a bridge into the wage labor market (Şerifoğlu, 2023). This aligns with human capital theory, which emphasizes that returns on educational investment are only significantly felt at the upper levels, where cognitive, analytical, and professional competencies are more developed (Şerifoğlu, 2023).

However, these results also indicate an education-job mismatch—a condition where educational outcomes do not match labor market demands (Sitorus & Wicaksono, 2020). Primary and secondary education in Indonesia, particularly in rural areas, is often theoretical and does not develop practical work skills (Khoiruddin et al., 2024). It is therefore not surprising that individuals at this level— especially women—do not gain sufficient competitive advantages in accessing employment.

On the contrary, higher education offers a real advantage. This is where the theory of labor market segmentation comes into play (Păcurariu, 2019): only those in the "primary labor market" (characterized by stability, high wages, and formal contracts) can access productive and decent jobs, and this access is facilitated by higher education.

Gender × Education Interaction

The interaction between gender and education reveals a very interesting dynamic: at the lower and secondary levels of education, men have higher job opportunities, but at the higher levels, women actually outperform. This is in line with research by Richardson (2014), which shows that highly educated women are able to overcome gender stigma and discrimination in the formal labor market, because their intellectual and social capital is more valued in modern and professional sectors.

Another study by Lidya & Kadir (2019) on the gender wage gap in Indonesia also shows that education has a greater impact on women's participation and wages than on men's, making higher education an "equalizer" in the gender wage gap. In other words, the higher the education level, the smaller the discriminatory effect on women.

However, in primary and secondary education groups, women continue to face structural barriers, such as limited employment sectors, domestic social norms (Hosanoo et al., 2024), and caregiving expectations, which make them less active in the labor market, even though they have the same education as men (Mehta & Awasthi, 2019).

CONCLUSION

Overall, these logistic regression findings do not contradict mainstream theories in labor economics and gender but rather reveal the depth of social dynamics hidden behind aggregate statistics. Women's labor force participation can no longer be viewed as a sole function of gender, but rather as the result of a complex interaction between education, social norms, labor market structure, and life stage.

These findings support the importance of a differentiated approach to employment policy: improving education in general is not enough; women need to ensure access to higher education and a work environment that supports their productive participation. Conversely, for men who do not pursue higher education, practical skills-based job transition schemes and reskilling that are adaptive to changes in the economic structure need to be developed.

Responsive employment policies must address structural differences between men and women in education and job access. Higher education has been shown to be a key driver of women's labor force participation, while men remain dominant in the lower to secondary education segments. With a differentiated and integrated policy approach, the gender-based labor force participation gap can be reduced more systematically and sustainably.

Suggestions/recommendations

Based on the results of the logistic regression, it was found that education, gender, and the interaction between the two variables significantly influence the probability of a person being employed for wages. This finding indicates the need for employment policies that are more sensitive to education and gender factors. Higher education has been shown to be a very powerful factor in encouraging labor participation, especially for women. Therefore, local governments need to expand access to higher education for women, especially those from poor groups and rural areas. This access can be facilitated through affirmative action scholarship programs, achievement incentives, and the establishment of vocational colleges in areas that have previously lacked access. Higher education not only increases women's employment opportunities but also narrows the gender gap in the formal and professional sectors.

On the other hand, the finding that primary and secondary education have not been able to significantly boost workforce participation indicates that the curriculum at this level is not fully responsive to labor market needs. Therefore, secondary education policy needs to be directed towards reorienting the curriculum to be more based on practical skills and local needs. Integrating internship programs and industrial training, especially for women, can improve the connection between education and the world of work. Secondary education should serve as a foundation for young people, especially women, to enter the productive workforce, not simply as a transitional level.

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