DETERMINANTS OF LABOR MARKET PARTICIPATION AMONG ETHNIC MINORITY YOUTH IN NORTHWEST VIETNAM

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Abstract: ***This study examines the determinants of labor market participation among ethnic minority youth in Northwest Vietnam using VHLSS data and a binary logistic regression model. The results show that individual factors are most influential. Youth aged 25-35 are more likely to participate than those aged 15-18, while higher education levels are associated with lower participation due to continued schooling. Gender disparities persist, with females less likely to participate, whereas married individuals show higher participation rates. Household size and rural residence are not statistically significant. The study highlights the need for policies that support school-to-work transitions, reduce gender inequality, and better align education with local labor market demands.***

• Keywords: *labor market participation; ethnic minority youth; school-to-work transition; human capital; gender disparities.*

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1. Introduction

Labor market participation is a key driver of economic development, affecting income, productivity, and long-term mobility. For youth, early labor market experiences are especially important in shaping future outcomes (Heckman & Mosso, 2014; International Labour Organization, 2022). However, participation remains uneven across demographic and ethnic groups due to differences in resources and opportunities.

In Vietnam, ethnic minorities represent about 14-15% of the population but face higher poverty and lower education levels (Baulch et al., 2007). These disparities are more severe in the Northwest, a region with limited infrastructure and high dependence on agriculture (Food and Agriculture Organization of the United Nations, 2019). Despite this, evidence on ethnic minority youth participation in this region is still limited.

Existing studies mainly focus on general employment patterns or gender and regional gaps (Blau & Kahn, 2017), with limited analysis of ethnic minority youth using microdata such as VHLSS (General Statistics Office of Vietnam, 2023, 2024). Moreover, prior research often examines individual, household, and spatial factors separately, reducing the ability to capture their combined effects.

Theoretically, labor participation is shaped by human capital, household conditions, and structural constraints. Education increases employability (Cunha & Heckman, 2007), while gender norms and marital status influence labor supply decisions (Blau & Kahn, 2017). Household resources and location also affect access to jobs and information (Deaton & Zaidi, 2002), especially in remote regions.

This study uses VHLSS data and a binary logistic model to examine how demographic, educational, household, and spatial factors influence participation among ethnic minority youth aged 15-35 (Hosmer et al., 2013; Greene, 2018). It contributes by providing micro-level evidence for a disadvantaged region, integrating multiple determinants, and offering insights for policies on human capital, gender equality, and labor market integration.

2. Theoretical Framework

2.1. Education and Labor Market Participation

Human capital theory suggests that education increases productivity and returns to labor participation, improving employability and access to formal jobs (Mincer, 1974). Empirical studies confirm a positive relationship between education and labor force participation, especially among youth (International Labour Organization, 2023).

However, education can delay labor market entry as young people remain in school,

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particularly those aged 15-24. In Vietnam, ethnic minorities face educational disadvantages due to limited access, language barriers, and economic constraints, which restrict their participation in formal labor markets (United Nations Development Programme, 2022; Tran & Vu, 2016).

H1: Educational attainment is associated with youth labor market participation, although its effect may vary across stages of the school-to-work transition.

2.2. Age and Life-Cycle Effects

Life-cycle theory suggests that labor participation reflects trade-offs between schooling and work (Killingsworth & Heckman, 1986). Younger individuals tend to stay in education, while older youth face greater economic responsibilities. In Vietnam, participation increases after schooling completion (OECD, 2023), and among ethnic minorities, early marriage and household duties may further accelerate entry into the labor market (World Bank, 2023).

H2: Labor market participation increases with age, reflecting life-cycle transitions from schooling to employment.

2.3. Gender Differences

Labor supply theory suggests that participation depends on wages and time allocation, shaped by gender norms and household roles (Killingsworth & Heckman, 1986). In developing countries, women often face constraints such as unpaid care work and limited access to formal jobs (Verick, 2014). In Vietnam, although female participation is relatively high, gender gaps persist in job quality and employment opportunities (Nguyen & Le, 2017). Among ethnic minorities, traditional roles further limit women's participation in wage labor (UN Women & International Labour Organization, 2023).

H3: Female ethnic minority youth are less likely to participate in the labor market than male youth.

2.4. Marital Status

Marital status affects labor supply decisions through income needs and household specialization. Household economic models suggest that marriage may increase male labor supply due to greater financial responsibility, while the effect for women depends on cultural expectations and childcare responsibilities (Killingsworth & Heckman, 1986).

Empirical evidence from Vietnam indicates that marriage is associated with higher participation among men but produces mixed effects for women (World Bank, 2024). Among ethnic minorities, early marriage is common and often linked to increased economic obligations (United Nations Development Programme, 2022).

H4: Married youth are more likely to participate in the labor market than unmarried youth.

2.5. Household Characteristics

Household economic conditions influence participation decisions through income and substitution effects (Deaton & Zaidi, 2002). Higher household income may reduce the necessity for youth to work, while larger household size may increase income needs and encourage labor supply.

In rural and mountainous areas of Vietnam, limited household assets and livelihood insecurity often push young individuals into agricultural or informal employment (World Bank, 2023). For ethnic minority youth, household constraints may therefore shape both the timing and type of labor market participation.

H5: Household characteristics are associated with youth labor market participation, although their effects may diminish once individual-level factors are controlled for.

2.6. Spatial Factors

Spatial economic theory highlights the importance of geographic location in shaping access to employment opportunities and labor market information (Phan & Coxhead, 2010). Remote and rural areas typically face weaker infrastructure, limited connectivity, and lower labor demand.

The Northwest region of Vietnam is characterized by mountainous terrain and a high concentration of ethnic minority populations (OECD, 2019). Such structural constraints may restrict access to nonfarm and formal employment, particularly for youth with limited mobility and resources.

H6: Rural residence affects youth labor market participation primarily through its interaction with human capital and household constraints rather than as a direct determinant.

3. Methodology

3.1. Data and Variables

This study uses microdata from the Vietnam Household Living Standards Survey (VHLSS) conducted by the General Statistics Office of Vietnam (General Statistics Office of Vietnam, 2023), a nationally representative survey covering demographics, education, employment, and living conditions.

The sample focuses on ethnic minority youth aged 15-35 in the Northwest region, including Lai Chau, Dien Bien, Son La, Hoa Binh, Lao Cai, and Yen Bai. After excluding missing data, the final sample consists of 272 observations (from an initial 303).

Table 1. Definition of variables used in this study

Variable codes	Type	Definition
Dependent variable		
LMP	D	Labor market participation
Independent variables		
AGE	C	Age of youth, as of higher last birthday
AGE_SQ	C	Age square of youth
RURAL	D	Living in rural area
FEMALE	D	Youth is female
MARRIED	D	Current married
Education levels		The highest grade of education (including official and non-official education) that youth has finished or graduated
NO-EDUC	D	Never attended school or not graduated primary school yet
PRIMARY	D	Graduated Primary school
SECONDARY	D	Graduated Secondary school
HIGH_SCHOOL	D	Graduated High school
VOCATIONAL *COLLEGE_OVER*	D D	Graduated vocational education or training Graduated college and over school
HSIZE	D	Total number of family members (person)
TIME	D	Time trend, as the number of years from the start of the study period, time = 1, 2, 3

Source: own specification; Note: D = discontinuous variables; C = Continuous variables.

Table 2 reports descriptive statistics for 303 ethnic minority youths aged 15-35 in Northwest Vietnam. About 46% participate in the labor market, with an average age of 25. Females account for more than half of the sample, and 61% are married. Approximately 26% live in rural areas. Most respondents have secondary or higher education, while only a small share has low education levels. The average household size is about four members, providing an overview of key demographic and socioeconomic characteristics.

Table 2. Descriptive statistics

	Means	Std. Dev.	Min	Max
Dependent variable				
LMP	0.460	0.499	0	1
Independent variables				
AGE	24.676	6.373	15	35
AGE_SQ	649.397	316.311	225	1225
RURAL	0.264	0.441	0	1
FEMALE	0.526	0.500	0	1
MARRIED	0.607	0.489	0	1
Education levels				
NO_EDUC	0.013	0.114	0	1
PRIMARY	0.043	0.203	0	1
SECONDARY	0.185	0.389	0	1
HIGH_SCHOOL	0.297	0.458	0	1
VOCATIONAL	0.150	0.217	0	1
COLLEGE_OVER	0.243	0.476	0	1
HSIZE	4.017	1.733	1	9
TIME	2.201	0.730	1	3
Observations	303			

Source: Authors' calculations using VHLSS 2020-2024

3.2. Empirical Strategy

To examine the determinants of labor market participation, this study employs a binary logistic regression model. Given that the dependent variable is dichotomous, logistic regression is appropriate because it constrains predicted probabilities to the interval (0,1) and avoids the limitations of linear probability models (Wooldridge, 2010).

Let Y_i denote the labor market participation status of individual i, where:

$$Y_i = \begin{cases} 1 & \text{if individual } i \text{ participates in the labor market} \\ 0 & \text{otherwise} \end{cases}$$

The probability of participation is specified as:

$$P(Y_i = 1 \mid X_i) = \frac{1}{1 + e^{-(\beta_0 + \beta_1 AGE_i + \beta_2 AGE_SQ_i + \beta_3 FEMALE_i + \beta_4 MARRIED_i + \beta_5 EDUC_i + \beta_6 HSIZE_i + \beta_7 RURAL_i + \beta_8 TIME_i)}}$$

where X_i represents the vector of explanatory variables. The coefficients β_k measure the effect of each variable on the log-odds of labor market participation.

The model is estimated using Maximum Likelihood Estimation (MLE), which yields consistent and asymptotically efficient estimates under standard regularity conditions (Greene, 2018). To facilitate interpretation, both logit coefficients and marginal effects are reported. Marginal effects allow direct interpretation in terms of changes in participation probability. An odds ratio greater than one indicates that the variable increases the likelihood of labor market participation, whereas an odds ratio below one implies a negative association.

Robust standard errors are employed to account for potential heteroskedasticity. Multicollinearity

among explanatory variables is assessed using Variance Inflation Factors (VIFs). Model fit is evaluated using the likelihood ratio test and pseudo - R^2 statistics (Long & Freese, 2014).

This empirical framework enables a systematic assessment of how individual characteristics, household conditions, and spatial factors jointly influence labor market participation among ethnic minority youth in a disadvantaged regional context.

4. Results

4.1. Logistic Regression Results

Table 3 reports the estimation results of the logistic regression models examining the determinants of labor market participation among ethnic minority youth in Northwest Vietnam. Three complementary specifications are presented, including logit coefficients, marginal effects, and a model incorporating age-group indicators. The consistency of coefficient signs and statistical significance across specifications strengthens the reliability of the findings.

Table 3. Determinants of Labor Market Participation

	(1)	(2)	(3)
	Logit Coefficients	Marginal Effects	Age Groups
AGE	0.448*	0.070*	
	(0.271)	(0.041)	
AGE_SQ	-0.007	-0.001	
	(0.005)	(0.001)	
FEMALE	-0.589*	-0.092*	-0.693**
	(0.342)	(0.052)	(0.338)
MARRIED	0.837**	0.131**	0.991**
	(0.395)	(0.060)	(0.389)
RURAL	-0.077	-0.012	-0.124
	(0.407)	(0.064)	(0.402)
NO-EDUC	1.069	0.167	0.997
	(0.685)	(0.109)	(0.723)
HIGH_SCHOOL	-1.363***	-0.213***	-1.396***
	(0.448)	(0.065)	(0.453)
VOCATIONAL	-1.505**	-0.236**	-1.448*
	(0.739)	(0.113)	(0.746)
COLLEGE_OVER	-2.955***	-0.463***	-2.833***
	(0.502)	(0.057)	(0.503)
HSIZE	0.135	0.021	0.143
	(0.097)	(0.015)	(0.098)
TIME	0.509**	0.083**	0.558***
	(0.223)	(0.035)	(0.215)
15-18			0.000
			(.)
19-24			1.211**
			(0.483)
25-35			1.786***
			(0.511)
Constant	-7.338**		-1.963***
	(3.304)		(0.740)
Observations	272	272	272

Standard errors in parentheses

$^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Secondary education is used as the reference category for education variables. The age group 15-18 serves as the reference group in column (3).

Overall, the results indicate that labor market participation is predominantly shaped by individual-level characteristics age, gender, marital status, and educational attainment while household and spatial variables play a comparatively limited role once these factors are controlled for. This general pattern supports the theoretical framework developed in Section 2, particularly the relevance of life-cycle and human capital perspectives.

Age effects and life-cycle transition

Consistent with Hypothesis 2, age exhibits a statistically significant effect on labor force participation. The positive marginal effect indicates that participation probability increases with age within the observed range. The squared term is not statistically significant, suggesting no strong nonlinear life-cycle pattern in the sample.

When age is modeled categorically, youth aged 19-24 and especially 25-35 exhibit significantly higher probabilities of participation compared to the 15-18 reference group. Marginal effects indicate that the probability of participation increases substantially for older youth cohorts.

These findings align with life-cycle labor supply theory (Killingsworth & Heckman, 1986) and empirical evidence showing that labor force participation rises after schooling completion (OECD, 2023). The results confirm that school-to-work transition dynamics play a central role in shaping youth labor market outcomes in the Northwest region.

Gender disparities in labor force participation

The estimation results strongly support Hypothesis 3. Female youth are significantly less likely to participate in the labor market than male youth. Marginal effects suggest a gender participation gap of approximately 9 percentage points.

This finding is consistent with prior studies documenting gender disparities in labor force participation in Vietnam (Nguyen & Le, 2017) and broader developing country contexts (Verick, 2014). The persistence of the gender effect even after controlling for education and marital status suggests that structural and normative constraints

rather than differences in human capital alone continue to shape female labor market outcomes. The evidence therefore reinforces the argument that gender norms and unequal household responsibilities influence youth labor supply decisions.

Marital status and economic responsibility

The coefficient on marital status is positive and statistically significant, providing support for Hypothesis 4. Married youth are more likely to participate in the labor market than unmarried youth, with marginal effects indicating an increase in participation probability of approximately 13 percentage points.

This result is consistent with household economic theory, which predicts that marriage increases financial responsibility and strengthens labor supply incentives (Killingsworth & Heckman, 1986). Empirical evidence from Vietnam also suggests that marriage is associated with greater economic engagement, particularly among men (World Bank, 2024). The findings imply that household formation acts as an important life event influencing labor supply behavior among ethnic minority youth.

Education and delayed labor market entry

The relationship between education and labor market participation reveals an important dynamic consistent with Hypothesis 1. Compared to the reference category, youth with high school, vocational, and especially college or higher education display significantly lower probabilities of participation.

At first glance, this negative association may appear inconsistent with human capital theory. However, it reflects delayed labor market entry among more educated youth who remain enrolled in schooling during the school-to-work transition period. Similar patterns have been documented in studies examining youth transitions in developing economies (International Labour Organization, 2023).

In contrast, youth with no education or only primary education do not exhibit statistically significant differences relative to the reference group, suggesting that low educational attainment neither strongly delays nor accelerates entry into the labor market. These findings highlight the transitional nature of youth labor force participation and underscore the importance of distinguishing short-term participation from long-term employability.

Household characteristics and location

The results do not provide strong support for Hypothesis 5 or Hypothesis 6. Household size and rural residence are not statistically significant determinants once individual characteristics are controlled for.

This finding suggests that life-cycle factors and human capital endowments dominate household-level and locational influences in explaining participation decisions. Although earlier studies have documented rural-urban disparities in employment outcomes, the absence of a significant rural effect in this study implies that such differences may operate indirectly through education and demographic composition rather than directly determining participation probabilities.

Time Trends

The positive and statistically significant time trend indicates a gradual increase in youth labor force participation over the study period. This pattern is consistent with broader improvements in labor market conditions and ongoing economic development efforts in Vietnam.

4.2. Discussion of Findings

Taken together, the empirical results demonstrate that youth labor force participation among ethnic minority groups in Northwest Vietnam is primarily driven by life-cycle transitions, gender, marital status, and educational attainment. Age and marriage significantly increase participation probabilities, while higher education is associated with delayed entry due to continued schooling. Gender disparities persist even after controlling for observable characteristics, suggesting the presence of structural constraints.

The findings are broadly consistent with human capital theory and life-cycle labor supply models, while also highlighting the importance of gender norms in shaping labor market outcomes in disadvantaged regions. By integrating individual, household, and spatial factors within a unified empirical framework, the study provides micro-level evidence that contributes to the literature on youth labor market behavior in developing economies.

5. Conclusion and Implications

5.1. Conclusion

This study investigates the determinants of labor market participation among ethnic minority youth aged 15-35 in Northwest Vietnam using nationally representative microdata from the Vietnam Household Living Standards Survey for the period 2020-2024. Employing a binary logistic regression framework, the study examines how demographic, educational, household, and spatial characteristics influence participation decisions in a structurally disadvantaged regional context.

The empirical results show that youth labor market participation is primarily driven by individual-level factors. Age is positively associated with participation probability, reflecting life-cycle transitions from schooling to employment. Marital status significantly increases the probability of participation, indicating the role of household formation and economic responsibility in shaping labor supply decisions. Gender disparities remain pronounced, as female ethnic minority youth are significantly less likely to participate in the labor market even after controlling for education and other characteristics. Educational attainment demonstrates a transitional effect: higher education particularly vocational and college levels is associated with delayed labor market entry, consistent with extended schooling during the school-to-work transition period.

In contrast, household size and rural residence do not exert statistically significant direct effects once individual characteristics are taken into account. This suggests that structural disadvantages associated with geography operate indirectly through differences in human capital accumulation and demographic composition rather than through location alone.

From a theoretical perspective, the findings provide empirical support for human capital theory and life-cycle labor supply models in explaining youth participation behavior. The results also highlight the importance of gender norms and social constraints in shaping labor market outcomes within ethnic minority communities.

Overall, the study contributes region-specific micro-level evidence on ethnic minority youth in one of Vietnam's most disadvantaged areas. By integrating individual, household, and spatial determinants within a unified empirical framework, the research enhances understanding of labor supply behavior in developing and ethnically diverse contexts.

5.2. Policy and Research Implications

Policy Implications

The findings suggest several important policy implications.

First, the negative association between higher education and current participation reflects delayed labor market entry rather than weak labor attachment. Policies should therefore focus on strengthening school-to-work transition mechanisms, including career guidance, vocational counseling, and partnerships between training institutions and local employers.

Second, persistent gender disparities indicate the need for gender-sensitive labor market interventions. Expanding access to childcare services, promoting flexible employment arrangements, and addressing gender norms through community-based programs may help reduce participation gaps among female ethnic minority youth.

Third, although rural residence does not have a direct statistical effect, structural disadvantages remain significant in the Northwest region. Investments in local labor demand, infrastructure connectivity, and nonfarm employment development are essential to create sustainable employment opportunities for youth.

Finally, targeted vocational and technical training programs tailored to local labor market needs could enhance employability while reducing mismatches between education and employment outcomes.

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