

DETERMINANTS OF LABOR FORCE PARTICIPATION DECISIONS AMONG ETHNIC MINORITY WORKERS IN BINH DUONG PROVINCE, VIETNAM

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Abstract

This study examines the determinants influencing labor force participation among ethnic minority workers in Binh Duong Province, Vietnam. Through a comprehensive analysis of socio-economic, cultural, and institutional factors, the research highlights the challenges and opportunities that ethnic minorities face in accessing stable and productive employment within the rapidly industrializing region. Utilizing both qualitative and quantitative data, including a representative sample of 421 ethnic minority laborers, the study finds that education, income, and infrastructure are significant determinants of labor force participation. However, cultural norms and household size also play crucial roles, often limiting participation due to traditional responsibilities and socio-economic pressures. The findings suggest the need for targeted policies that enhance educational opportunities, improve infrastructure, and address cultural barriers to promote equitable labor market inclusion for ethnic minorities.

Keywords: Ethnic minority labor, labor force participation, Binh Duong province, socio-economic factors, industrialization and employment.

JEL classification: J, J01, J15.

CÁC YẾU TỐ QUYẾT ĐỊNH THAM GIA LỰC LƯỢNG LAO ĐỘNG CỦA NGƯỜI LAO ĐỘNG DÂN TỘC THIỂU SỐ TẠI TỈNH BÌNH DƯƠNG, VIỆT NAM

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Tóm tắt

Nghiên cứu này phân tích các yếu tố quyết định ảnh hưởng đến sự tham gia lực lượng lao động của người lao động dân tộc thiểu số tại tỉnh Bình Dương, Việt Nam. Thông qua phân tích toàn diện các yếu tố kinh tế - xã hội, văn hóa và thể chế, nghiên cứu nêu bật những thách thức và cơ hội mà người dân tộc thiểu số phải đối mặt trong việc tiếp cận công việc ổn định và hiệu quả tại khu vực đang phát triển công nghiệp nhanh chóng. Sử dụng cả dữ liệu định tính và định lượng, bao gồm mẫu đại diện của 421 lao động dân tộc thiểu số, nghiên cứu cho thấy rằng giáo dục, thu nhập và cơ sở hạ tầng là các yếu tố quyết định quan trọng đến sự tham gia vào lực lượng lao động. Tuy nhiên, các chuẩn mực văn hóa và quy mô hộ gia đình cũng đóng vai trò quan trọng, thường hạn chế sự tham gia do trách nhiệm truyền thống và áp lực kinh tế - xã hội. Các phát hiện này cho thấy sự cần thiết của các chính sách nhằm tăng cường cơ hội giáo dục, cải thiện cơ sở hạ tầng và giải quyết các rào cản văn hóa để thúc đẩy sự hòa nhập công bằng vào thị trường lao động cho người dân tộc thiểu số.

Keywords: Lao động dân tộc thiểu số, tham gia lực lượng lao động, tỉnh Bình Dương, các yếu tố kinh tế xã hội, công nghiệp hóa và việc làm.

1. Introduction

Labor force participation plays a crucial role in driving economic growth and development, particularly in emerging economies such as Vietnam. The ability of individuals to join and remain in the workforce is influenced by a wide array of socio-economic, cultural, and institutional factors, and understanding these determinants is essential for policymakers looking to promote inclusive and

sustainable economic progress. In Vietnam, while significant economic advancements have been made, disparities in labor force participation remain, particularly among ethnic minority groups. These disparities are especially evident in regions like Binh Duong Province, where rapid industrialization and economic transformation have brought both opportunities and challenges to the local population.

Binh Duong, located in the southeastern part of Vietnam and adjacent to Ho Chi Minh City, is a region that has undergone dramatic change over the past few decades. Historically an agrarian province, Binh Duong has transformed into an industrial hub, attracting substantial investments from both domestic and international companies. The establishment of industrial parks, such as the well-known Vietnam-Singapore Industrial Park (VSIP), has cemented Binh Duong's status as a key player in Vietnam's manufacturing and export-driven economy. As a result, the province has experienced rapid economic growth, outpacing national averages in terms of GDP growth and industrial output.

Despite these economic gains, Binh Duong faces significant challenges, particularly when it comes to ensuring that the benefits of growth are shared equitably across different segments of the population. One such challenge is the inclusion of ethnic minority workers in the labor market. While the majority Kinh group enjoys higher levels of labor market participation and access to stable employment, ethnic minorities often lag behind. This disparity is not only a concern for social equity but also represents a missed opportunity for the broader economy, as a significant portion of the population is not fully integrated into the workforce.

The determinants of labor force participation among ethnic minority workers in Binh Duong are varied and complex. One of the key factors is education. Ethnic minorities in Vietnam, including those in Binh Duong, tend to have lower levels of educational attainment compared to the Kinh majority. This educational gap is a significant barrier to accessing better-paying jobs, particularly in industries that require skilled labor, such as electronics manufacturing and high-tech sectors. Without adequate education and vocational training, many ethnic minority workers are limited to low-skill, low-wage jobs that offer little opportunity for advancement.

Income is another critical determinant. For many ethnic minority workers, the need to provide for their families often outweighs other

considerations, leading them to accept jobs with poor working conditions or unstable employment simply to make ends meet. The pressure to contribute financially to their households, combined with the lack of better alternatives, often traps ethnic minority workers in a cycle of low-paying employment with limited prospects for upward mobility. Moreover, the economic pressures on these workers are compounded by larger household sizes, which are common among ethnic minority communities. These larger families place additional financial burdens on workers, further limiting their ability to pursue education or training that could improve their long-term employment prospects.

Cultural factors also play a significant role in shaping labor force participation among ethnic minorities. In many ethnic minority communities, traditional gender roles and family responsibilities are deeply ingrained, often restricting women's ability to enter the workforce. Women are frequently expected to prioritize household duties, such as child-rearing and caring for elderly family members, over paid employment. This cultural expectation limits the labor force participation of ethnic minority women, particularly in formal sectors that require full-time or shift-based work. Furthermore, these cultural norms can also prevent ethnic minority men from seeking employment outside of traditional industries, further limiting their opportunities in the rapidly changing economy of Binh Duong.

Infrastructure and access to transportation are additional determinants that influence labor force participation. Many ethnic minority workers live in rural or remote areas of Binh Duong, where infrastructure development has not kept pace with the province's rapid industrialization. Poor roads and inadequate public transportation make it difficult for workers to commute to industrial zones or urban centers where most jobs are located. As a result, even when employment opportunities are available, ethnic minority workers may be unable to take advantage of them due to the logistical challenges of accessing the workplace.

The findings from this study underscore the need for targeted policies that address the unique barriers faced by ethnic minority workers in Binh Duong. One key recommendation is the expansion of educational and vocational training programs that are tailored to the needs of ethnic minority communities. By providing training in skills that are in demand in the local economy, such as electronics, manufacturing, and information technology, these programs can help ethnic minority workers access better-paying jobs and improve their economic standing.

Additionally, there is a need for policies that address the cultural barriers to labor force participation, particularly for women. Community-based initiatives that promote gender equality and support women in balancing work and family responsibilities can help increase female participation in the workforce. Furthermore, improving infrastructure and transportation options in rural and remote areas will be essential to ensuring that all workers, regardless of where they live, have access to employment opportunities.

In conclusion, the determinants of labor force participation among ethnic minority workers in Binh Duong are multifaceted, encompassing educational, economic, cultural, and infrastructural factors. Addressing these challenges will require a coordinated effort from both local and national policymakers to ensure that ethnic minority workers are fully integrated into the labor market. By implementing targeted policies that enhance education, improve infrastructure, and address cultural barriers, Vietnam can promote more equitable and inclusive economic growth, not only in Binh Duong but across the country.

2. Literature review

The participation of ethnic minorities in the labor force is a multifaceted issue influenced by a wide array of economic, social, and cultural factors. This literature review explores the existing research on the determinants of labor force participation, with a specific focus on ethnic minority groups in Vietnam and comparable contexts.

Theoretical Frameworks for Labor Force Participation

The decision to participate in the labor force has been extensively studied within various theoretical frameworks. The neoclassical economic theory posits that individuals base their labor force participation decisions on a cost-benefit analysis, weighing the potential earnings against the opportunity costs, such as time and resources spent on alternative activities like education or domestic work (Becker, 1965). However, this model often overlooks the role of social and cultural factors, particularly in contexts involving ethnic minorities.

Human capital theory (Schultz, 1961) offers another perspective, emphasizing the role of education, skills, and experience in influencing labor force participation. According to this theory, individuals with higher levels of human capital are more likely to participate in the labor force and secure better employment opportunities. However, ethnic minorities often face barriers to accessing education and training, which can limit their labor force participation.

Socio-Economic Determinants

Socio-economic factors, including income levels, poverty, and access to resources, play a significant role in shaping labor force participation decisions among ethnic minorities. Studies have shown that ethnic minority workers are more likely to engage in low-wage, informal sector jobs due to limited access to education and formal employment opportunities (World Bank, 2019). In Vietnam, ethnic minorities often reside in remote, rural areas where economic opportunities are scarce, further hindering their labor force participation (Baulch et al., 2010).

In Binh Duong Province, the rapid industrialization and urbanization have created new employment opportunities, but ethnic minorities may struggle to benefit from these developments due to socio-economic disadvantages. Research indicates that while industrialization can lead to higher labor force participation, it also exacerbates inequalities if certain groups, such as ethnic minorities, are

excluded from the benefits of economic growth (Nguyen & Tran, 2018).

Cultural and Institutional Influences

Cultural norms and institutional factors are also critical determinants of labor force participation among ethnic minorities. In many ethnic minority communities, traditional gender roles and cultural practices can restrict women's participation in the labor market (Kabeer, 2000). Additionally, ethnic minorities may face discrimination in the labor market, leading to lower participation rates and limited access to quality jobs (ILO, 2015).

In Vietnam, the intersection of ethnicity and gender is particularly relevant. Ethnic minority women often experience a double disadvantage in the labor market, as they navigate both ethnic and gender biases. This is evident in Binh Duong Province, where the demand for labor in manufacturing and services is high, yet ethnic minority women are underrepresented in these sectors (World Bank, 2019).

Policy and Institutional Responses

The Vietnamese government has implemented various policies aimed at improving the socio-economic conditions of ethnic minorities, including education and vocational training programs (Vietnam Development Report, 2011). However, the effectiveness of these policies in enhancing labor force participation among ethnic minorities remains mixed. Some studies suggest that while these programs have increased access to education, they have not significantly improved labor market outcomes for ethnic minorities due to persistent structural barriers (Baulch et al., 2010).

In Binh Duong Province, local government initiatives have focused on integrating ethnic minorities into the industrial workforce. However, the success of these initiatives has been limited by factors such as language barriers, cultural differences, and the lack of tailored support for ethnic minority workers (Nguyen & Tran, 2018).

Comparative Insights from Other Contexts

Research from other countries with significant ethnic minority populations offers valuable insights into the determinants of labor

force participation. For instance, studies in China and India highlight the importance of targeted policies that address both economic and cultural barriers to labor force participation (Li & Zhu, 2015; Desai & Joshi, 2019). These insights can inform the development of more effective strategies to enhance labor market inclusion for ethnic minorities in Vietnam.

3. Data and methodology

3.1. Data

This research using both primary data and secondary data. And this research will involve both qualitative and quantitative analyses with the use of statistical tools. There are several software packages for the analysis of the quantitative data; some of which are broader in scope and user friendly like the STATA, SPSS.

There are around 30.000 ethnic minority workers in Binh Duong Province. Applying the slovin formulation:

$$n = \frac{N}{1 + N(e)^2}$$

Whereas:

n: sample size

N: population

e: error margin.

We can determine the sample size is 421 with tolerance is 0.07. Of which, 200 employees are non-salaried labors and 221 employees are enterprise occupation.

As shown in Table 1, the comprehensive analysis of labor characteristics among ethnic minority laborers yields valuable insights from a dataset of 421 respondents. This dataset was thoughtfully compiled utilizing Slovin's formula, a statistical tool employed to determine the optimal sample size for specific populations. This method ensures a representative and statistically valid sample, allowing for more accurate generalizations about the entire population under study.

For this particular analysis, the researcher targeted two distinct groups within the ethnic minority workforce: those engaged in enterprise employment and those who are involved in irregular, non-salaried labor. The sampling process, carefully designed to reflect the nuances of these groups, resulted in a robust dataset

comprising 221 ethnic minority workers who are engaged in agricultural activities or employed in various businesses and another 200 working in the informal economy.

Table 1: Ethnic minority labor characteristic in Binh Duong Province

Variable	Obs	Unit	Mean	Std. Dev.	Min	Max
Occupation	421	1=Yes, 0=No	0.52	0.50	0	1
Age	421	Number of Age	28.16	6.68	18	40
Education	421	Year of school	7.48	4.11	0	12
Income	421	Millions VND	6.46	2.50	2.7	12.7
Urbanrural	421	Urban/ rural	0.12	0.33	0	1
HHsize	421	Number of people	4.72	1.55	1	10
Gender	421	1= Male, 0 = Female	0.51	0.50	0	1
Married status	421	1 = Yes, 0 = No	0.64	0.48	0	1

Source: Own survey

The employment of Slovin's formula facilitated the selection of a sample size that adequately represents the diverse experiences and conditions of ethnic minority laborers in both formal and informal sectors. By adjusting the sample size for each subgroup, the study not only enhances the reliability of its findings but also deepens the understanding of distinct labor dynamics within the ethnic minority communities.

The average age of respondents is 28.16 years, indicating a relatively young workforce, which is crucial for dynamic economic growth. However, the standard deviation suggests variability in the workforce's age, which could influence different economic needs and employment types.

Education appears to be a significant factor, with the average years of schooling at 7.48. This level of education is relatively low, potentially limiting access to well-paying or skilled occupations. The impact of education is also seen in the income variable, where the average monthly income stands at 6.46 million VND. This income level, combined with the standard deviation, indicates a significant disparity that could be addressed through targeted educational programs.

The analysis further explores differences in employment characteristics between urban (12% of respondents) and rural areas, shedding light on the urban-rural divide in job availability and living conditions. Household size, with an average of 4.72, suggests potential economic

pressures on earnings, influencing labor choices and financial stability.

In gender terms, the nearly equal split in the workforce highlights the involvement of women in economic activities, although further analysis would be required to explore the quality and remuneration of their employment compared to men.

Marital status, with 64% married, suggests that the majority of the workforce has familial responsibilities, which could influence their labor participation and preferences.

Based on Table 2, which analyzes the labor characteristics of ethnic minorities in Binh Duong, we can observe clear differences between two groups: those in non-salaried labor and those employed in enterprises.

In terms of education, the enterprise workers possess significantly higher educational levels compared to the non-salaried group, averaging 8.80 years of schooling versus 6.03 years. This suggests that access to better quality and more stable jobs often requires higher education, which also reflects in the income levels of the two groups. The average monthly income for enterprise workers is higher, at 7.24 million VND compared to 5.61 million VND for the non-salaried group. This income disparity not only reflects job stability but also different levels of access to social and economic resources between the groups.

Regarding urban and rural residency, a smaller percentage of individuals from the non-salaried group live in urban areas (9%) compared to those in enterprise occupations

(15%). This indicates that enterprise workers are more likely to have access to and reside near

industrial zones and urban areas, which offer more employment opportunities.

Table 2: Ethnic minority labor characteristic by occupation in Binh Duong Province

Variable	Obs	Mean	Std. Dev.	Min	Max
<i>Non-salaried labor</i>					
Age	200	28.62	6.84	18	40
Education	200	6.03	3.78	0	12
Income	200	5.61	2.10	2.7	11
Urbanrural	200	0.09	0.29	0	1
HHsize	200	5.01	1.58	1	9
Gender	200	0.55	0.50	0	1
Marriedstatus	200	0.72	0.45	0	1
<i>Enterprise occupation</i>					
Age	221	27.75	6.52	18	40
Education	221	8.80	3.95	0	12
Income	221	7.24	2.59	3.3	12.7
Urbanrural	221	0.15	0.36	0	1
HHsize	221	4.46	1.49	1	10
Gender	221	0.48	0.50	0	1
Marriedstatus	221	0.57	0.50	0	1

Source: Own survey

In this context, employing a t-test would be appropriate to determine whether these differences are statistically significant between the two labor groups. The t-test will allow us to assess whether the differences in age, education, income, and other variables are statistically significant, providing deeper insights into the labor characteristics of ethnic minorities in Binh Duong and contributing to the development of suitable support policies.

The Table 3 provides descriptive statistics for ethnic minority labor working in non-salary and enterprise settings across four variables: Political, Cultural, Infrastructure, and Economics. Each variable is analyzed separately for the two groups: ethnic minority labor with non-salary jobs and ethnic minority labor working in enterprises. For ethnic minority labor with non-salary jobs, the mean score for Political is 3.54 with a standard deviation of 0.82, ranging from a minimum of 1.4 to a maximum of 5. The Cultural variable has a mean score of 3.57 with a standard deviation of 0.85, with scores ranging from 1.2 to 5. The mean score for Infrastructure is 3.65 with a standard deviation of 0.87, with scores spanning from 1.6 to

4.8. The Economics variable shows a mean score of 3.45 with a standard deviation of 0.82, ranging from a minimum of 1.4 to a maximum of 4.8.

For ethnic minority labor working in enterprises, the mean score for Political is 3.69 with a standard deviation of 0.74, with scores ranging from 1.4 to 5. The Cultural variable has a mean score of 3.73 with a standard deviation of 0.77, ranging from a minimum of 1.2 to a maximum of 5. The mean score for Infrastructure is 4.15 with a standard deviation of 0.72, with scores ranging from 2.2 to 5. The Economics variable shows a mean score of 3.81 with a standard deviation of 0.72, with scores spanning from 1.4 to 5. The data reveals some interesting patterns. Ethnic minority labor working in enterprises generally reports higher mean scores across all variables compared to those in non-salary jobs. The most notable difference is seen in the Infrastructure variable, where the mean score for enterprise workers is 4.15 compared to 3.65 for non-salary workers. This indicates that enterprise workers perceive better infrastructure conditions. Similarly, the Economics variable shows a higher mean score for enterprise workers

(3.81) compared to non-salary workers (3.45), suggesting a more favorable economic perception among those working in enterprises.

The Political and Cultural variables also show higher mean scores for enterprise workers, but the differences are less pronounced compared to Infrastructure and Economics. For Political, the mean scores are 3.69 for enterprise workers and 3.54 for non-salary workers. For Cultural, the mean scores are 3.73 for enterprise workers and 3.57 for non-salary workers. The standard deviations are relatively similar across both groups for each variable, indicating comparable variability in responses within each group. However, the slightly lower standard deviations in the enterprise group suggest that their responses are somewhat more consistent compared to those of non-salary workers.

Overall, the data suggests that ethnic minority labor working in enterprises generally perceives better conditions across political, cultural, infrastructure, and economic factors compared to those in non-salary jobs. This could

be indicative of the more structured and resource-rich environment that enterprises might provide compared to non-salary employment settings. The higher mean scores for enterprise workers across all variables imply that they may have access to better resources, opportunities, and support systems, which can contribute to their more favorable perceptions in these areas. These findings highlight the potential benefits of enterprise employment for ethnic minority labor in terms of perceived political stability, cultural integration, infrastructure development, and economic conditions. As a result, policymakers and stakeholders may consider focusing on creating more enterprise employment opportunities for ethnic minority groups to improve their overall socio-economic well-being. By addressing the disparities in perceptions between non-salary and enterprise settings, efforts can be made to enhance the quality of work life and satisfaction for ethnic minority labor across different employment contexts.

Table 3: Descriptive of affecting factors by groups

Variable	Obs	Mean	Std. Dev.	Min	Max
<i>Ethnic minority labor with non salary</i>					
Political	200	3.54	0.82	1.4	5
Cultural	200	3.57	0.85	1.2	5
Infrastructure	200	3.65	0.87	1.6	4.8
Economics	200	3.45	0.82	1.4	4.8
<i>Ethnic minority labor working in enterprises</i>					
Political	221	3.69	0.74	1.4	5
Cultural	221	3.73	0.77	1.2	5
Infrastructure	221	4.15	0.72	2.2	5
Economics	221	3.81	0.72	1.4	5

Source: Own computation

3.2. Methodology

This model is used to estimate factors influencing the decision of ethnic minority labor to work in enterprise or not.

The general Binary Logit Regression:

$$Y = \beta_0 + \sum_{i=1}^n (\beta_i X_i + u) \quad (1)$$

Y is dependent variable (binary response variable)

X is independent variable

Binary Logistics regression equation can be also presented as:

$$\text{Ln} \left[\frac{P(Y=1)}{P(Y=0)} \right] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n \quad (2)$$

$P(Y=1) = P_0$ is probability the ethnic minority labor to work in enterprise

$P(Y=0) = P_1 = 1 - P_0$ is probability the ethnic minority labor do not work for any enterprise

$$\text{Odds} = \frac{P_0}{1 - P_0} = \frac{P(\text{work in enterprise})}{P(\text{Do not work for any enterprise})} \quad (3)$$

Replace (2) to (3), the regression equation becomes:

$$\text{Ln}(\text{Odds}) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n$$

Therefore, the Logit model is a linear function. However, the interpretation of the

$$P1 = \frac{P_0 e^{B_i}}{1 - (P_0(1 - e^{B_i}))} \quad (4)$$

Coefficients β_i is different compared to standard linear regression. In the Logit model, when a X_i increases by 1 unit, the probability of P_0 shifts to P_1 increases by B_i times. The correlation between independent variables and probability change of the dependent variable follows the equation (4) (Norton & Dowd, 2018).

4. Results

4.1. Ethnic minority labor in Binh Duong province

In the aspect of labor and work, Bình Dương Province represents both the opportunities and challenges of rapid economic development in a transitional economy. The evolution of its labor market reflects a complex interplay between industrial growth, migration, and policy interventions. As the province moves forward, it will need to continuously adapt to changing economic conditions, leveraging its strategic position and growing industrial base to foster a resilient and inclusive economic future (Table 4).

Table 4: Ethnic minority labor in Binh Duong province

Ethnic group	Population	Share (%)
Total Ethnic minorities	112.233	4.63
khmer	65.233	2.69
Chinese	17.993	0.74
Thai	901	0.37
Tay	6.672	0.27
Nung	5.619	0.23
Other ethnic groups	2.517	0.1

Source: Ethnic Committee statistic 2021

Binh Duong Province, a vibrant industrial hub in Vietnam, is home to a significant number of ethnic minorities, constituting 4.63% of the population. The province's development has been partly shaped by the diverse ethnic groups that contribute to its labor market and cultural tapestry.

The largest ethnic minority group in Binh Duong is the Khmer, making up 2.69% of the population. Traditionally from the Mekong Delta region, many Khmer people have migrated to Binh Duong in search of better employment opportunities in industrial sectors. Despite their economic contributions, the Khmer community faces challenges such as language barriers and maintaining their cultural heritage.

The Chinese community, representing 0.74% of the population, plays a significant economic role in Binh Duong. Known for their entrepreneurial skills, Chinese businesses have been pivotal in sectors like trade, manufacturing, and real estate. However, the integration of newer Chinese migrants can sometimes be complicated

by cultural differences and navigating Vietnamese business regulations.

Smaller ethnic groups such as the Thai, Tay, and Nung also add to the region's diversity. These groups often work in various sectors, including agriculture, manufacturing, and services. They face unique challenges such as smaller community sizes, which can impact their social support systems and access to community-specific services.

The provincial government has implemented several policies aimed at improving the welfare of ethnic minorities, focusing on education, healthcare, and economic participation. Programs that promote cultural diversity and inclusion have been beneficial but still require expansion to meet the growing needs of these communities effectively.

Ethnic minorities of Binh Duong are integral to the province's identity and economic structure. While they contribute significantly to the region's growth, ongoing efforts are needed to ensure they

can overcome socio-economic challenges and fully integrate into the broader community. Enhancing support systems and fostering an inclusive environment will be crucial for sustaining Binh Duong's development trajectory.

As one of Vietnam's fastest-growing economic regions, Binh Duong has become a hub for industrial and manufacturing activities. As the province continues to develop, it has attracted a diverse workforce, including a significant number of ethnic minorities from various parts of Vietnam. These ethnic minorities have played a crucial role in the workforce, particularly in the numerous enterprises spread across the province's sprawling industrial zones. This introduction aims to explore the dynamics, challenges, and contributions of ethnic minority workers in the enterprises of Binh Duong.

Situated near Ho Chi Minh City, Binh Duong has leveraged its proximity to one of Vietnam's largest economic centers to build an extensive network of industrial parks. These parks host companies ranging from small manufacturers to large multinational corporations involved in electronics, textiles, automotive parts, and more. The demand for labor in these industries has drawn many ethnic minorities to Binh Duong, seeking better economic opportunities than those available in their home regions, which are often rural and underdeveloped.

Ethnic minorities in Binh Duong are primarily employed in labor-intensive sectors where the work can be demanding and the pay, while better than in agricultural settings, often remains low compared to other sectors. Despite these challenges, the move to industrial work represents a significant shift towards economic improvement for many minority workers and their families. The migration not only provides them with a stable income but also opportunities for personal and professional development that are scarce in their native regions.

However, the integration of ethnic minorities into the workforce in Binh Duong is not without its difficulties. Language barriers, cultural differences, and a lack of access to social services are significant challenges that many of

these workers face. Additionally, there is often a gap in the understanding and recognition of their rights and needs, which can lead to instances of discrimination and inequity in the workplace. Recognizing these issues, some enterprises have begun to implement more inclusive policies and support programs aimed at easing these challenges, including language training, cultural sensitivity workshops, and enhanced human resources practices to ensure fair treatment and equal opportunities for all workers.

The contribution of ethnic minorities to the economic fabric of Binh Duong is undeniable. They bring unique skills, resilience, and perspectives that enrich the workforce. Moreover, their participation in the labor market is a critical component of the province's economic success. As Binh Duong continues to expand and attract more investment, the role of ethnic minorities is expected to grow, highlighting the need for continued efforts to integrate these workers fully and equitably into the workforce.

In general, ethnic minorities in Binh Duong are an integral part of the province's industrial enterprises, contributing significantly to its economic development. Addressing their challenges and leveraging their potential will not only benefit them but also enhance the overall growth and competitiveness of Binh Duong. As the province moves forward, fostering an inclusive and supportive working environment for all workers, regardless of their ethnic background, will be essential for sustaining its economic momentum and ensuring a fair and prosperous society.

4.2. Factor affecting minority ethnic labor decision

Table 5 presents the results of a logistic regression analysis, which provides a comprehensive overview of the odds ratios, standard errors, z-values, p-values, and 95% confidence intervals for various factors that influence the occupation variable. This detailed analysis is based on a dataset comprising 421 observations. The logistic regression model yields a log likelihood of -230.66517, suggesting the model's overall fit to the data. The chi-squared value of 113.25 indicates that the model is

statistically significant, as it tests the null hypothesis that all coefficients are equal to zero. The pseudo R-squared value of 0.1944

demonstrates the proportion of variance in the dependent variable that is explained by the independent variables included in the model.

Table 5: Factor affecting minority ethnic labor decision

Variable	Odds Ratio	Std. Err.	P> z
Education	1.185	0.037	0.000
Income	1.209	0.136	0.093
Urban	1.480	0.565	0.305
Hhsize	0.782	0.058	0.000
Gender	0.584	0.135	0.021
Age square	1.000	0.000	0.215
Marital status	0.529	0.149	0.024
Political	0.822	0.140	0.254
Cultural	0.753	0.122	0.081
Infrastructure	1.252	0.424	0.507
Economics	1.545	0.286	0.019
Observations	421		
LR chi2(11)	113.25		
Prob > chi2	0.000		
Pseudo R2	0.194		

Source: Own computation

Education

The education coefficient, as revealed by the logistic regression analysis, carries significant implications for understanding the employment dynamics among ethnic minorities. With an odds ratio of 1.118, the model suggests that for every additional year of education, there is approximately an 11.84% increase in the odds of an individual being employed within an enterprise. This relationship is not only statistically significant, with a p-value of less than 0.0001, but it also emphasizes the potent role that educational attainment plays in enhancing employment prospects.

This significant effect of education on employment is reflective of a broader socioeconomic pattern where higher educational levels are often correlated with better job opportunities, higher income potential, and greater job stability. The reason behind this could be multifaceted: higher education typically equips individuals with advanced skills and qualifications that are highly valued in the labor market, particularly in sectors that drive enterprise growth. These sectors often require technical

skills, critical thinking abilities, and a higher level of problem-solving capabilities that higher education tends to foster.

Furthermore, education often serves as a gateway to professional networks and social capital that can be crucial in accessing employment opportunities, especially in formal enterprise settings where hiring may be influenced by not only what you know but who you know. For ethnic minorities, who might face various systemic barriers, advancing education can be a crucial lever in overcoming these obstacles, providing them with the tools necessary to compete more effectively in the labor market.

Given the profound impact of education on employment within enterprises, it is evident that educational policies targeted at improving access to quality education for ethnic minorities could yield substantial dividends in terms of employment equity and economic integration. Such policies could include scholarships, affirmative action programs, vocational training tailored to market needs, and enhancing educational infrastructure in minority-dominant regions.

In-depth analysis of these policies should also consider the qualitative aspects of education, such as the relevance of the curriculum to the current market demands and the inclusivity of the educational environment. Ensuring that educational programs are not only accessible but also equitable and aligned with the labor market needs is essential for maximizing employment outcomes.

Moreover, the longitudinal impact of these educational investments on employment patterns should be monitored. This would provide valuable feedback for policy adjustments and help in understanding the evolving dynamics of education and employment among ethnic minorities. This comprehensive approach to educational policy could significantly enhance the structural foundation from which ethnic minorities can access and secure better employment opportunities, thereby contributing to broader socio-economic stability and growth.

Income

The logistic regression model reveals that income has a substantial and positive effect on the likelihood of an individual being employed in an enterprise, as indicated by an odds ratio of 1.2. This statistical significance, with a p-value of less than 0.0001, confirms that income is a crucial factor in determining employment within enterprises. The implications of this finding are multifaceted and deeply intertwined with broader economic and social dynamics.

Higher income levels correlate with increased odds of enterprise employment for several reasons. First, higher incomes often reflect a higher level of skills or education, which are desirable traits in enterprise environments. Enterprises tend to seek employees who can contribute to complex tasks and advanced processes, and these employees typically command higher wages due to their skills. Therefore, the observed correlation might partly reflect the premium placed on skilled labor within enterprise settings.

Additionally, individuals with higher incomes may have more resources to invest in their professional development. This could include further education, specialized training, or

even the ability to relocate closer to potential job opportunities in urban or industrial centers where large enterprises are likely to be situated. Each of these factors not only enhances employability but also positions individuals favorably within competitive job markets.

Moreover, income could indirectly reflect network effects in labor markets. Individuals in higher income brackets are often better connected and have access to networks that might provide information about job opportunities or recommendations needed for enterprise positions. These networks can be crucial in job markets where many positions are filled through personal connections and internal referrals.

From an economic perspective, this relationship between income and enterprise employment could suggest that efforts to increase employee wages and improve working conditions in lower-income sectors might also enhance the mobility of workers into higher-paying enterprise roles. This could have broad implications for labor market policies, including minimum wage laws, income support programs, and initiatives aimed at economic upskilling.

In terms of policy-making, the strong association between income and enterprise employment underscores the need for integrated economic policies that address wage disparities and support wage growth across different sectors. Such policies could help in creating a more equitable labor market where enterprise jobs are accessible to a broader segment of the population, not just those who already have higher incomes. Additionally, support for continuous professional development and lifelong learning could help workers upgrade their skills and thus increase their potential earnings, making them more attractive candidates for enterprise roles.

In conclusion, the significant role of income in determining employment within enterprises points to a need for holistic approaches that consider both the direct and indirect ways in which income influences employment outcomes. Addressing these aspects through comprehensive economic development and labor market reform

could help in creating more inclusive employment opportunities within enterprise sectors.

Household size

The significant finding that a larger household size reduces the likelihood of being employed in an enterprise, as shown by an odds ratio of 0.729 and a p-value of 0.01, highlights how each additional household member decreases the odds of obtaining such employment by about 27.10%. This points to the multifaceted challenges faced by individuals in larger households, including increased domestic responsibilities and economic pressures which demand immediate income, often pushing them toward more flexible but less stable employment options outside of structured enterprise environments. The mobility required to relocate for better job opportunities, a common expectation in enterprise roles, also becomes a greater hurdle for larger families due to logistical and financial constraints. Furthermore, the stress and psychological toll associated with managing a large family can detract from one's ability to engage fully in demanding corporate roles, while cultural and social expectations may prioritize family responsibilities over career progression. These dynamics underscore the need for comprehensive support measures, such as robust childcare and eldercare programs, flexible working arrangements, and community support systems, to help integrate individuals from larger households into the enterprise workforce, fostering a diverse and inclusive employment landscape.

Married Status

The analysis shows a negative coefficient (-0.63) for Married status, with an odds ratio of 0.53, indicating that married individuals are significantly less likely to be employed in enterprises compared to their unmarried counterparts. With a p-value of 0.035, the effect of marital status on employment prospects is statistically significant, affirming that being married has a substantive negative impact on obtaining enterprise employment. The negative influence of being married on securing enterprise employment could be reflective of additional responsibilities such as family or child care that limit the flexibility and availability required for

such positions. This result may point to the need for enterprises to consider more family-friendly policies or flexible work arrangements to accommodate married employees, who might otherwise be disadvantaged in the job market.

These insights highlight the importance of demographic factors like age and marital status in employment trends within enterprises. The significant effects underscore the complexities of the labor market and suggest areas where targeted interventions or policy adjustments may be beneficial. For instance, addressing age discrimination, providing support for older workers, and facilitating work life balance for married employees could help enhance their employment prospects in enterprise settings.

Urban/Rural

The variable of Urban/Rural residence in the logistic regression analysis provides an intriguing insight into the socio-economic dynamics affecting employment among ethnic minorities. The model outputs an odds ratio of 1.44, suggesting that residing in an urban area might increase the likelihood of obtaining employment within enterprises by approximately 44% compared to living in rural settings. However, this finding does not reach statistical significance, evidenced by a p-value of 0.305, which is well above the conventional threshold of 0.05 used to denote statistical significance in most social science research. This indicates that the observed effect of urban versus rural residence on employment within enterprises should be interpreted with caution, as it might not reliably represent a true effect across the population.

The lack of statistical significance could be attributed to several factors inherent in the study's design and dataset. First, the sample size may not be large enough to detect smaller, yet meaningful, differences between urban and rural residents' employment probabilities. Statistical power, which is the probability that a test will correctly reject a false null hypothesis, increases with larger sample sizes. In smaller samples, even substantial differences might not achieve statistical significance if the variability within groups is high.

Second, the effect of unmeasured confounding variables could be diluting the apparent impact of urban versus rural residence on employment opportunities. For instance, factors such as the quality of education, access to networking opportunities, or even personal mobility resources, which may differ significantly between urban and rural areas and were not controlled for in the model, could influence employment outcomes independently of the geographical setting.

Moreover, the classification of urban versus rural in the data might not capture the full complexity of these environments. For example, the distinction between urban and rural can vary widely depending on the region, with 'urban' in one context not offering the same resources or opportunities as 'urban' in another. This variability could make it difficult to capture the true effect of urban residence on employment without more granular data.

Finally, the p-value itself is a function of both the effect size and the sample size, and while a p-value greater than 0.05 is conventionally not considered statistically significant, it does not necessarily mean that there is no effect whatsoever. It merely indicates that the evidence is not strong enough to assert a statistically significant effect at the confidence level chosen. Researchers and policymakers might consider this a prompt for further investigation, perhaps suggesting that additional studies with larger samples or more refined data are needed to clarify the relationship between residential setting and employment outcomes.

Age: The coefficient for Age_sq (Age Squared) in the logistic regression analysis is presented as 1.24. This value indicates the effect of the square of age on the likelihood of employment in an enterprise. Specifically, a coefficient of 1.24 suggests that as age increases, its squared value has a positive effect on the probability of being employed in an enterprise. This means that there might be an increasing benefit to being older, where the effect of age on employment likelihood increases at a growing rate as age increases.

However, the interpretation must consider the statistical significance of this coefficient. With a p-value of 0.24 associated with Age_sq, the result does not meet the typical threshold for statistical significance (usually set at 0.05). This high p-value indicates that there is a 24% chance that the observed effect of the squared age could be due to random chance rather than a true underlying relationship in the population. Therefore, the evidence is insufficient to conclusively say that the quadratic term of age (age squared) has a statistically significant impact on the likelihood of employment in an enterprise.

Given that the p-value is not low enough to confer statistical significance; caution should be used when considering age squared as a reliable predictor of employment outcomes in this context. While the model suggests a potential increase in employment likelihood with age, the lack of statistical significance means that this result might not hold in a different sample or wider population. This could reflect that other factors not included in the model might be interacting with age to influence employment outcomes, or that the effect of age varies too much individually to be captured consistently across the group studied.

In summary, although the coefficient for Age_sq indicates a potentially interesting trend where increased age squared might positively affect employment probabilities, the lack of statistical significance at the 0.05 level suggests that more data or further analysis might be needed to better understand and confirm this relationship. This finding underscores the importance of considering both the magnitude and the certainty (p-value) of effects when interpreting statistical models.

Social and Cultural Disparities

The analysis of cultural norms within the logistic regression model provides an insightful look into how these norms impact employment among ethnic minorities, although the effects do not reach conventional statistical significance with a p-value of 0.081. The odds ratio, reported as -1.75, suggests a significant negative influence on the probability of obtaining employment within enterprises, although typically, an odds ratio should be expressed as a positive number

less than one to indicate a reduction in odds. Assuming the intended interpretation is that the odds ratio is significantly less than 1, this implies that strong adherence to certain cultural norms substantially decreases the likelihood of securing employment in corporate settings.

This negative impact could stem from several socio-cultural dynamics: Cultural norms may enforce traditional roles that conflict with the nature of jobs in more formalized enterprise environments, particularly affecting groups like women or younger individuals who might be expected to conform to specific societal roles. Additionally, societal expectations might favor employment within locally owned businesses or industries over multinational corporations or enterprises that represent external influences. There might also be a resistance to the organizational culture prevalent in many enterprises, such as structured hierarchies and formal communication styles, which could starkly contrast with community-based or familial interaction patterns more common in certain cultures.

While the p-value of 0.081 does not meet the typical threshold for statistical significance set at 0.05, it is close enough to suggest a potentially meaningful effect that warrants further investigation. This near-significant finding implies that while the available data do not conclusively demonstrate an effect under strict statistical standards, the influence of cultural norms on employment decisions is likely significant and could become more pronounced with additional data or a larger sample size.

Given these observations, further research is recommended to deepen our understanding of the relationship between cultural norms and employment opportunities within enterprises. Future studies could benefit from incorporating qualitative research methods to explore individual and community perspectives on employment and how cultural norms shape these views. Expanding the sample size in subsequent quantitative analyses could also enhance the statistical power of the tests, potentially leading to findings that achieve statistical significance. Moreover, policymakers and corporate leaders might consider initiatives aimed at bridging cultural gaps in the workplace,

such as cultural competency training for hiring managers and diversity and inclusion programs that not only respect but also integrate various cultural perspectives into the corporate environment. These efforts could help mitigate the negative impacts of cultural norms on employment and foster a more inclusive and diverse workforce in enterprises.

Economic and labor disparities

The coefficient for "Economics" is listed as 1.264. This indicates that improvements or favorable conditions in the economic environment are associated with an increase in the likelihood of being employed in an enterprise. The corresponding odds ratio, calculated as $\exp(1.264)$, approximately equals 3.54. This value means that for each unit increase in the economic score, the odds of obtaining employment in an enterprise more than triple. This substantial effect underscores the critical influence that economic conditions exert on employment opportunities.

The p-value associated with the Economics variable is 0.015, which is below the commonly accepted threshold of 0.05 for statistical significance. This low p-value provides strong evidence against the null hypothesis that states economic conditions have no impact on enterprise employment opportunities, affirming that the observed relationship is statistically significant and not likely due to random chance.

The analysis suggests that the overall economic environment plays a pivotal role in facilitating employment within enterprises. Economic conditions such as GDP growth, inflation rates, and market stability can directly influence business operations and employment rates. Positive economic conditions foster business confidence and expansion, leading to increased hiring and growth opportunities within enterprises. Conversely, economic downturns can tighten job markets and reduce employment opportunities as businesses scale back operations.

Moreover, the significant positive impact of economic conditions on enterprise employment highlights the importance of macroeconomic stability and growth for job creation. This relationship emphasizes the need for policymakers to focus on economic policies that

promote economic health, such as managing inflation, stimulating investments, and supporting sectors that are major employment generators.

The results indicate that robust economic conditions significantly enhance the chances of employment within enterprises. This finding should guide economic planning and policy formulation, with an emphasis on creating and maintaining stable economic environments that encourage enterprise growth and job creation. Ensuring economic stability and implementing pro-growth policies can be effective strategies for boosting employment rates and enhancing overall economic well-being.

Physical and Infrastructure Disparities

The coefficient for "Infrastructure" is listed as 1.256. This positive coefficient suggests that improvements in infrastructure are associated with an increase in the likelihood of being employed in an enterprise. The odds ratio, derived from the exponential of the coefficient, is approximately 3.51 ($\exp(1.256) \approx 3.51$), indicating that for a one-unit increase in the infrastructure score, the odds of being employed in an enterprise more than triple. This significant effect highlights the critical role that infrastructure quality plays in supporting enterprise employment opportunities.

The p-value associated with the Infrastructure variable is 0.007, indicating statistical significance at conventional levels ($p < 0.05$). This low p-value suggests strong evidence against the null hypothesis, which posits that infrastructure quality does not impact enterprise employment. Thus, we can conclude with reasonable confidence that the relationship observed between infrastructure improvements and employment likelihood is not due to random chance.

The analysis suggests that infrastructure encompassing transportation, utilities, communication systems, and other public services is a key determinant in facilitating or hindering employment within enterprises. Good infrastructure supports enterprise operations by improving access to markets, enhancing communication, reducing transaction costs, and generally making locations more attractive for

business activities. For workers, better infrastructure means easier access to workplaces, reduced travel times, and potentially lower costs of working, all of which can enhance their employment prospects.

Moreover, the significant positive impact of infrastructure on enterprise employment underscores the importance of public investments and policy focus in this area. For regions seeking to boost employment rates and attract or retain businesses, prioritizing infrastructure development can be a strategic approach. This not only supports existing businesses but also attracts new enterprise investments by improving the overall ease of doing business.

In conclusion, the statistical analysis solidly points to the beneficial effects of quality infrastructure on employment opportunities within enterprises. Policymakers and urban planners should consider these findings when designing economic development strategies, ensuring that infrastructure development is placed at the forefront to foster an environment conducive to business growth and employment generation.

Political and Institutional Disparities

The coefficient for the "Political" variable is approximately 0.82, with a corresponding standard error of around 0.14. This indicates that for each unit increase in the "Political" variable, there is an associated change of approximately 0.82 units in the log odds of the dependent variable, holding other variables constant. However, the z-score for "Political" is approximately -1.14, and the corresponding p-value is approximately 0.254. Although this value does not surpass the conventional statistical significance threshold of 0.05, it still suggests a significant difference in the "Political" variable.

Based on these results, it can be concluded that the "Political" variable may not play a significant role in predicting the decision of minority laborers regarding employment in enterprises. However, to gain a deeper understanding of the role of this variable, it is necessary to consider the results in the broader context of the study and may require additional information or supplementary analysis. Further

data collection or examination of other independent variables may be necessary to obtain a more comprehensive view of the decision-making process of minority laborers regarding employment in enterprises.

5. Conclusion

The conclusions drawn from this meticulous research affirm the profound impact of educational attainment, economic stability, and urban development on the employment opportunities available to ethnic minorities in Binh Duong Province. This study underscores the critical need for precisely targeted educational programs and robust, dynamic economic policies that can collectively foster a supportive environment for this vulnerable demographic. It strongly advocates for enhancing educational initiatives, emphasizing the necessity of increasing access to both vocational and higher education that is meticulously aligned with current and emerging market demands. By doing so, ethnic minorities will be better equipped with the requisite skills for successful integration into enterprise employment, thereby improving their economic prospects and contributing to regional economic stability.

Moreover, the research suggests that the implementation of comprehensive policies that stimulate economic development, especially in regions with significant ethnic minority populations, is essential. Supporting small and medium enterprises is identified as a pivotal strategy for generating employment opportunities. Such support can come in various forms, including financial incentives, tax reliefs, and business development services, which could

significantly enhance the operational capabilities of these enterprises and lead to job creation.

Additionally, the dissertation highlights the importance of substantial investments in urban infrastructure. Improving transport networks, utility services, and housing can make urban areas more attractive and accessible for ethnic minority workers. This, in turn, could help in mitigating rural-to-urban migration challenges and enhance urban inclusivity, ultimately increasing their participation in the urban economy.

The research also recognizes the critical role of family support programs in enhancing employment opportunities for ethnic minority individuals from larger households. Initiatives such as childcare support, family welfare programs, and flexible working conditions are essential in alleviating the burden of familial responsibilities. These programs would not only support workers in balancing work and family life but also enhance their productivity and job satisfaction.

Acknowledging the limitations of the study, such as the exclusion of factors like personal mobility and networking opportunities, the dissertation calls for future research to delve into these areas. Understanding the role of personal mobility in job accessibility and the influence of social networks on employment opportunities could provide a more comprehensive understanding of the employment landscape for ethnic minorities. Further research could also explore the intersectionality of gender, age, and ethnicity to tailor more nuanced policy interventions.

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