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Factors Influencing the Income of Informal Laborers Under Economic and Social Exclusion in Vietnam's Northern Highlands

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Abstract

Addressing economically social exclusion has long been a focal point in developed nations, whereas in developing contexts like Vietnam, it has only recently begun receiving attention. For rural laborers, breaking free from economically social exclusion is largely dependent on gaining improved employment opportunities. A higher level of employability directly enhances the potential for increased endogenous income among laborers. This study employs a Binary Logistic Regression model to investigate the factors influencing the endogenous income of informal laborers experiencing economically social exclusion in the northern mountainous rural regions of Vietnam. Data were gathered through structured questionnaires, capturing both dependent and independent variables relevant to the analysis. A total of 725 rural laborers from the provinces of Tuyen Quang, Yen Bai, Ha, Quang Ninh, and Bac Giang participated in the survey.

The analysis demonstrates that all identified factors have a positive correlation with endogenous income, with laborer qualifications emerging as the most significant determinant. Since employment is central to enhancing laborers' endogenous income, the study critically assesses existing employment policies aimed at rural laborers and offers several policy-oriented recommendations to improve employment outcomes for informal laborers in these rural regions in the foreseeable future.

Keywords: Factors, Income, Rural, Laborer, Policies

Introduction

In the 1990s, Vietnam was categorized as a low-income nation, with nearly half of its households living in poverty. Responding to this issue, the Vietnamese Government introduced a series of Poverty Reduction Programs beginning in 1998. By 2010, approximately 41 initiatives and projects targeting poverty alleviation had been implemented [1], and many of them are still active. These programs addressed poverty through a tripartite strategy: (i) improving access to fundamental services like education, healthcare, vocational training, housing, legal aid, and clean water; (ii) enhancing production capacity via preferential credit policies directed at agriculture, forestry, fishery, and labor export; and (iii) building critical infrastructure in the most disadvantaged areas. Additionally, government efforts extended to assisting farmers in both production and marketing of their goods. As a result, the national poverty rate had dropped to roughly 10% by 2010 [2], contributing to an overall improvement in living standards.

Despite these outcomes, Vietnam's poverty alleviation efforts have faced sustainability challenges, as economic instability frequently causes households to fall back into poverty. A significant shift occurred following the introduction of Decision 59/2015/QD-TTg, which redefined the poverty threshold in 2016. This adjustment led to a noticeable increase in the

proportion of individuals and households hovering near or returning to poverty, particularly in the northern mountainous rural areas of the country.

While developed countries have long prioritized resolving economically driven social exclusion, this concept is relatively novel in developing economies like Vietnam. This study aims to analyze the factors impacting the endogenous income of informal laborers living under economically social exclusion in Vietnam's rural northern highlands. Furthermore, the paper proposes methods to enhance the internal income levels of informal laborers in these regions.

Literature review

The term social exclusion originated in France and refers to individuals who are left out of the benefits of economic progress [3]. This condition is often the result of intersecting disadvantages that isolate individuals and communities in cycles of deprivation. Unlike poverty, which primarily concerns material scarcity, social exclusion is a more expansive concept encompassing economic, political, cultural, and social dimensions [4]. In economic terms, it reflects deficiencies in employment and income, with job access serving as a critical indicator [5]. According to Xu & Chen [6], the most effective strategy for individuals to enhance their internal income—the largest component of household income—is through active labor market participation. Engagement in employment not only improves income levels but also strengthens individuals' integration into social and political life, which are key aspects of addressing economic exclusion [7].

Mai *et al*. [1] define the economically excluded group as those whose income falls between the third and fourth quintiles, comprising about 60% of the population, including both the poor and near-poor. In general, holding a job enables laborers to earn more than they would through public assistance or community support. Employment facilitates broader social connections that would otherwise be limited or inaccessible. A job environment also fosters interactions with institutional structures such as trade and professional associations. However, not all employment safeguards against economic exclusion. Occupations with low pay and instability—such as part-time retail work or waiting tables—fail to ensure consistent income, thereby exposing workers to the risk of economic marginalization.

For informal laborers in rural areas, changing socio-economic dynamics compel them to diversify beyond agriculture. Many engage in non-agricultural activities, often without formal labor contracts [8, 9]. In economies undergoing transition, such informal non-agricultural work can contribute 20–70% to overall laborer income [10]. As a result, rural laborers frequently combine agricultural work with participation in industrial, commercial, and service sectors [11, 12]. In addition to labor market earnings, these laborers may receive support from public welfare, property rentals, or financial help from relatives [13]. Therefore, income for the general population, especially rural laborers, typically comes from two main sources: endogenous and exogenous.

Exogenous income refers to earnings obtained without active participation in the labor market—such as family support or state subsidies. In contrast, endogenous income is generated directly through laborers' involvement in agricultural or non-agricultural economic activities [14]. This form of income represents laborers' contribution through direct participation in production and service-related work and accounts for nearly 90% of total income among rural laborers.

Materials and Methods

This research employed a Binary Logistic Regression model to investigate the determinants of endogenous income among Vietnamese rural laborers facing economic dimensions of social exclusion. The study design entailed the classification of variables as outlined below:

(i) The dependent variable pertains to the income condition of rural laborers in the context of economic social exclusion. This variable was operationalized as binary: individuals earning below the near-poor threshold were assigned a value of 1, while those with incomes above this threshold were assigned a value of 0.

(ii) The independent variables comprised several socioeconomic and technological indicators, specifically: the expenditure on agricultural production, the educational attainment of the household head, and the technological level employed by rural workers. These variables were treated as either ordinal or continuous in the analytical model.

To evaluate associations between the dependent and independent variables within the regression framework, a Chi-square test was conducted. The hypothesis testing was framed as follows:

Null hypothesis (H0): There is no significant association between the variables under consideration.

Alternative hypothesis (H1): A statistically significant association exists between the dependent and independent variables.

The analysis utilizes the Chi-square test statistic (χ^2) to determine the significance level (P-value). When this P-value is less than or equal to the predetermined significance threshold α, the result is deemed significant, leading to the rejection of the null hypothesis (H0) and indicating that the variables are interrelated.

Binary logistic was used to analyze this case as follows:

$$Log\left(\frac{P_i}{P_j}\right) = \alpha_{ij} + \beta_{ij}X_1 + \beta_{ij}X_2 + \cdots + \varepsilon_{ij} \tag{1}$$

This research gathered data through face-to-face interviews with 725 participants from five provinces: Tuyen Quang, Yen Bai, Ha Giang, Quang Ninh, and Bac Giang, aiming to assess the endogenous income of Vietnamese rural laborers affected by economic social exclusion. Prior to conducting the survey and interviews, the researchers consulted experts to refine the survey questions and methodologies for data collection and analysis.

For measuring the dependent variable, endogenous income of rural workers, questionnaires were carefully structured to capture both endogenous and exogenous income sources reported by respondents. To enhance data reliability for subsequent processing and analysis, the questionnaire design included a verification step where the respondents' actual income levels were cross-checked against their self-reported placement within five income quintiles: poor, near-poor, middle, above average, and rich. Based on the economic social exclusion classification by Mai *et al.* [1], the study identified 358 informal workers in the Northern mountainous regions who experienced economic social exclusion, among whom 59 individuals fell into the middle-income third quintile **(Table 1)**.

Table 1. Number of economically social exclusion in Vietnam's northern mountainous rural area

		Quintile 1 (rich)	Quintile 2 (above average)	Quintile 3 (middle)	Quintile 4 (near poor)	Quintile 5 (very poor)
Respondents	725	13	97	305	41	269
Percentage	100%	1.8	13.4	42.1	6.3	36.4
		Number of workers not in social exclusion		Number of workers in social exclusion in the economic aspect		
Respondents	725	367		358		
Percentage	100%	50.6		49.4		
Tuyen Quang	125	Districts in Highland areas	49	76		
				10	7	59
Yen Bai	160		76	84		
				22	5	57
Ha Giang	146		66	80		
				20	8	52
Quang Ninh	164	District in plain areas	65	99		
				22	12	65
Bac Giang	130		96	34		
				9	10	15

Source: Mai N A *et al.* (2013), p 226 - 227

The questionnaires were developed utilizing both continuous and ordinal scales, specifically the Likert scale, to gather data on the independent variables.

- To capture data on expenditures related to agricultural activities, referred to as Funding data, respondents were asked to report their annual spending on agricultural production.
- Data regarding the educational qualifications of the household head, termed Education data, was obtained by having respondents indicate their formal education levels and any vocational training they had completed.
- For the technical data, reflecting the technological level employed by rural workers in their everyday farming practices, the questionnaire used an ordinal scale ranging from 1 to 5, where 1 indicated the lowest level of technology use and 5 represented the highest.

Results and Discussion

Analysis of the survey responses, processed through SPSS software, yielded the following findings:

Case processing
Table 2 details the subset of respondents relevant to the study, showing that 358 out of the total 725 participants across the five provinces were included in the target group.

Table 2. Summary

Unweighted Cases (a)		N	Percent
Selected Cases	Included in Analysis	358	49.4

	Missing Cases	367	50.6
	Total	725	100.0
Unselected Cases		0	.0
Total		725	100.0

a When applying weights, refer to the classification table to view the overall count of cases.

Table 3 reveals that out of the 358 laborers experiencing economic social exclusion, 83 individuals have incomes above the poverty line, while the remainder fall below it.

Table 3. Classification Table (a, b)

Observed			Predicted		
			INCOME		Percentage Correct
			1.00	2.00	
Step 0	INCOME	1.00 (below poverty line)	275	0	100.0
		2.00 (over poverty line)	83	0	.0
	Overall Percentage				76.8

a Constant is included in the model.
b The cut value is .500

Table 4. Omnibus Tests of Model Coefficients

		Chi-square	Df	Sig.
Step 1	Step	68.481	3	.000
	Block	68.481	3	.000
	Model	68.481	3	.000

Table 4 presents the Omnibus Tests of Model Coefficients, where both the Chi-square value and significance level (Sig.) are under 5%, indicating that the model is appropriate for this analysis.

Table 5. Model Summary

Step	-2 Log likelihood	Cox and Snell R Square	Nagelkerke R Square
1	31.922	.474	.563

The hypothesis test for the overall significance yielded a significance value of 0.00, leading to the rejection of the null hypothesis H0: âvondt = âhocvan = âcongnghe = 0. Additionally, the -2 Log-Likelihood (-2LL) value of 31.92, which is relatively low, indicates that the model demonstrates a satisfactory fit overall **(Table 5)**.

Table 6. Classification Table (a, b)

Observed			Predicted		
			INCOME		Percentage Correct
			1.00	2.00	
Step 1	INCOME	1.00 (below poverty line)	263	12	95.6
		2.00 (over poverty line)	59	24	28.9
	Overall Percentage				80.2

a) The cut value is .500

The classification table displays the effects of Funding, Education, and Technology on the endogenous income of Vietnamese rural laborers experiencing economic social exclusion. The findings indicate that among 275 laborers earning below the poverty line, the model predicted income status correctly with an accuracy exceeding 95.6%. Conversely, within the group of more than 83 workers with incomes above the average but still affected by economic social exclusion, the model identified 24 individuals as likely to overcome this exclusion **(Table 6)**. Overall, the model achieved an average prediction accuracy rate surpassing 80%.

Table 7. Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	Funding	.156	.023	47.750	1	.000	1.168
	Technology	.114	.146	.603	1	.037	1.120
	Education	.561	.285	3.887	1	.049	1.752

Constant	-4.488	.654	47.088	1	.000	.011

a Variable(s) entered on step 1: C821, C1405, CHOC.

In **Table 7**, which presents the Variables in the Equation, the Wald test was applied to assess the significance of the regression coefficients, revealing that the variables related to policy and qualifications had significance levels (sig.) below 0.05. Consequently, the null hypothesis Ho: âcapital = âlabor = âtechnology = 0 can be confidently rejected.

This indicates that the estimated regression coefficients are statistically significant, allowing the model to be expressed as follows:

$$\text{Log}_e \left[\frac{P\,(Y=1)}{P\,(Y=0)}\right] = -\,4.488 + 0.561\text{Education} + 0.156\text{Funding} + 0.114\,\text{Technology} \tag{2}$$

The significance of the coefficients in the Binary Logistic regression suggests that each factor has a positive effect on the endogenous income of Vietnamese rural laborers experiencing economic social exclusion. This means that an increase in any of these variables is associated with a rise in rural workers' income. Notably, enhancing the educational qualifications of workers exerts the strongest influence on boosting the endogenous income of these laborers facing economic social exclusion.

Recommendations for enhancing the endogenous income of informal laborers experiencing economic social exclusion in Vietnam's northern mountainous rural areas

Although the income quintiles remain intact, increasing endogenous income raises the actual earnings within all five income groups. Moreover, this growth in internal income enhances the likelihood of some individuals within these quintiles moving beyond the poverty threshold or escaping economic social exclusion. The endogenous income of rural laborers is influenced by factors such as expenditures on agricultural activities (Funding), the educational qualifications of workers (Education), and the technological applications used in daily farming tasks (Technology). Without creating promising employment opportunities, endogenous income is unlikely to improve positively. This section examines current employment support policies available to rural workers in Vietnam and offers recommendations to improve employment prospects generally and specifically for those facing economic social exclusion. The better the employment opportunities available to a laborer, the greater their potential to increase endogenous income.

Firstly, regarding education

Vocational education training equips participants with practical technical skills and the knowledge necessary to apply them effectively in everyday agricultural work [15]. Being well-prepared in their profession significantly improves an individual's chances of securing better employment [16]. Improved job opportunities translate directly into higher earnings for laborers. Vocational training policies play a crucial role in determining these job prospects.

To date, vocational training initiatives targeting laborers in Vietnam's northern mountainous regions—particularly those whose endogenous income is impacted by economic social exclusion—have been implemented through various programs. These include Program 135, officially titled the "Socio-economic Development Program for Especially Difficult Communes in Mountainous Areas," Resolution 30a/2008/NQ-CP on rapid and sustainable poverty reduction in 61 poor districts, Decision 1956/QD-TTg focusing on vocational training for rural laborers by 2020, and the National Target Program for sustainable poverty reduction for 2016-2020, among others.

These policies provide laborers in mountainous regions with support for short-term vocational training, including financial assistance for tuition, stipends for food, and travel expenses. The specific funding allocated for each training course is determined by local and provincial authorities based on their budgets. For courses lasting three months or more, trainees attend public vocational institutions and are eligible for scholarships, social benefits, and policies similar to those granted to ethnic minority boarding high school students [16]. In addition to facilitating laborers' access to the labor market after training, the National Fund for Employment, under the Targeted National Employment Program, offers loans to these workers.

These vocational training policies have contributed to increasing endogenous incomes and improving living standards for laborers and their families in northern mountainous areas, including those suffering economic social exclusion. However, several challenges remain that must be addressed to improve vocational training effectiveness in these regions. The number of laborers transitioning to non-agricultural jobs is relatively low, partly because few achieve intermediate vocational qualifications [17, 18]. Many rural laborers view intermediate training programs as time-consuming, and they worry about their family's financial security during their absence from work. Moreover, non-agricultural vocational training often has limited applicability to local production practices. Consequently, most rural laborers in these areas enroll in short-term vocational courses and return to agricultural or self-employed work afterward [19, 20]. However, qualifications from these short-term courses are often insufficient. The mismatch between training content and laborers' real needs must be resolved promptly.

Therefore, vocational training curricula should be closely aligned with the region's socio-economic development and tailored to local demand. Non-agricultural training programs should be driven by employer requirements, and no course should commence without assured job placement for graduates. Some short-term and specialized training should also be offered in ethnic languages to better suit the circumstances of target groups.

The Government should intensify awareness campaigns highlighting the value of education, especially targeting ethnic minority workers, to reinforce that education is essential for acquiring knowledge and applying scientific and technological advances to improve the quality of agricultural laborers. To achieve this goal, the Government should continue investing in establishing more ethnic boarding schools in remote and ethnic minority areas to encourage higher school attendance and reduce dropout rates. Additionally, policies aimed at attracting teachers to rural and remote locations require adjustment, particularly regarding salaries. In the coming period, teacher remuneration in rural areas must be revised to ensure they can sustain a decent living from their earnings.

Secondly, regarding funding

Investment capital directed towards agricultural production significantly shapes the livelihoods of rural communities [21]. Nevertheless, these financial resources remain limited, particularly in Vietnam's northern mountainous regions, historically recognized as some of the poorest areas nationwide, with poverty rates exceeding 50% prior to the early 2000s. The Government has introduced several financial support measures aimed at rural development, including Decision No. 67/1999/QD-TTg which provides various banking credit policies to assist agriculture and rural development; Decision No. 289/2008/QD-TTg that promulgates supportive policies for ethnic minorities, policy beneficiary households, impoverished and near-poor families, as well as fishermen; Decree No. 41/2010/ND-CP focusing on credit policies for agricultural and rural advancement; and Decree No. 75/2015/ND-CP which integrates forest development policies with sustainable poverty reduction and ethnic minority assistance programs for 2015–2020.

Agricultural production in these areas is vulnerable to risks such as natural disasters, droughts, storms, floods, and ongoing outbreaks in crop and livestock diseases, all of which severely disrupt productivity and impair workers' capacity to repay bank loans. Consequently, Decree No. 41/2010/ND-CP permits commercial banks to reconsider and restructure loan repayment schedules. Moreover, if borrowers can prove that their agricultural businesses suffered from natural calamities, banks are allowed to provide new loans irrespective of existing balances. However, the prevailing interest rate of 0.65% per month remains comparatively steep. Such high rates hinder farmers from transitioning from monoculture practices to diversified commodity production. Furthermore, despite the increase in non-mortgage loan limits to 10 million VND, this sum is still insufficient to meet the capital demands for farm economic development. Access to preferential loan treatment is restricted to those with a 'prominent profile,' a status most borrowers lack or who already have existing bank mortgages, making it challenging for many to qualify. Additionally, farmers seeking subsidies for machinery and equipment must purchase only from an approved list, limiting flexibility. These limitations create obstacles for laborers generally and especially for rural laborers facing economic social exclusion to secure bank funding.

Looking forward, policies supporting rural laborers should include extended loan repayment terms for those affected by force majeure and streamline procedures to facilitate borrowers' access to preferential benefits. Alongside reducing interest rates for agricultural production loans, the Government should also carefully evaluate mechanisms enabling informal laborers to increase their investment capital in agriculture.

Thirdly, regarding technology

In agricultural production, technology encompasses not just machinery but also the technical expertise possessed by informal workers [22, 23]. Most farming households in Vietnam's northern mountainous region operate on small, fragmented plots, making the large-scale use of modern agricultural machinery impractical. Coupled with limited capital accumulation, few families can afford such advanced equipment. Therefore, the mastery of cultivation techniques remains the most impactful means to enhance crop productivity and, consequently, endogenous income.

Farmers express a strong desire to acquire essential knowledge related to proper fertilizer and pesticide usage and to gain proficiency in new farming methods and advanced technologies that can be integrated into their production processes. Various initiatives targeting the technical skill enhancement of informal rural laborers have been implemented, such as Decision 52/2012/QĐ-TTg on employment and vocational training support for laborers affected by agricultural land recovery, and Decision 5480/QĐ-BNN-KTHT approving the agricultural vocational training plan for rural workers from 2016 to 2020. Despite these efforts, the agricultural extension workforce remains small in size and lacks sufficient qualifications.

In the forthcoming period, alongside revising credit policies to better support agricultural production, the Government should prioritize upgrading the competencies of specialized personnel engaged in agricultural extension services. Achieving this goal will require increasing budget allocations dedicated to training technical staff involved in agricultural promotion. These personnel must receive regular training and updates to their knowledge and skills, enabling them to effectively guide and

advise rural laborers on the adoption of improved cultivation techniques. This will facilitate the increased use of high-yield, high-quality seeds and livestock breeds, thereby supporting endogenous income growth.

Conclusion

By applying Binary Logistic Regression to analyze data from three hundred fifty eight out of seven hundred twenty five surveyed Vietnamese rural laborers experiencing economic social exclusion, this research identifies key factors positively influencing their endogenous income. While this paper proposes several strategies aimed at improving income levels for informal laborers in Vietnam's Northern mountainous regions, determining the necessary allocation of government funding to support these initiatives demands further comprehensive investigation beyond the present study's scope.

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