

AN INVESTIGATION OF POVERTY DYNAMICS AMONG ETHNIC MINORITIES IN VIETNAM

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Abstract

Despite remarkable achievements in poverty alleviation in the past decades, it appears challenging for Vietnam to further reduce poverty rate among ethnic minorities. This paper attempts to examine poverty dynamics in order to shed light on the transition of poverty status in those communities, using Vietnam Household Living Standard Survey 2016. We find that households in chronic poverty are associated with several demographic, geographical, asset possession and infrastructure access variables. These households often have bigger size, higher dependency ratio, lower age of household head, lower number of schooling years and living in mountainous areas. We identify a few variables statistically influence the probability of exiting poverty, such as dependency ratio, lack of land and having motorbikes. The probability of falling back into poverty is negatively associated with households having female head and motorbikes. These findings have implications to anti-poverty policies for ethnic groups in Vietnam.

Keywords: Poverty dynamics, multinomial logit, ethnic communities, Vietnam

INTRODUCTION

Along with rapid economic growth, Vietnam has achieved remarkable poverty alleviation in the past decades. About 70 percent of Vietnam's population can be classified as economically secure as of 2016 and poverty rate declined from 20.7% in 2010 to 9.8% in 2016, using data from Vietnam Household Living Standard Survey (VHLSS). However, poverty rate remains high among ethnic minorities and in mountainous areas (World bank, 2018). The sustainability of poverty reduction among ethnic minorities is still in question as re-entry rate is also high.

Understanding the determinants of poverty dynamics in these groups is, thus, important for any attempts to fight again poverty.

Bane and Ellwood (1986) shows that the dynamics of poverty can be modeled by estimating the probability of household entering and escaping from poverty. Using their approach, Nguyen Thang et al (2006) explored the dataset from VHLSS 2002 and VHLSS 2006 with multinomial logit framework to identify determinants of poverty dynamics in Vietnam for the 2002-2004 periods. They showed that household size and dependency ratio, education of household head, geographical location, agricultural production scale and possession of productive assets are key factors determining household poverty. Similarly, Baulch and Vu (2011) examined the dynamics of poverty in Vietnam using data from VHLSS 2002. They confirmed that household size, household composition, ethnicity and education of household head can explain household poverty. None of these studies, however, focus on poverty dynamics among ethnic minorities in Vietnam. In addition, these studies use dataset in early 2000s, when poverty characteristics might be different from current situation.

This paper aims to examine poverty dynamics among ethnic groups in Vietnam using updated dataset. Similar to previous studies, we employ the Bane and Ellwood (1986) framework to explore the determinants of poverty dynamics with dataset from VHLSS 2016. We find that households in chronic poverty are more likely to have bigger size, higher dependence ratio, lack of land and living in the Northwest, Northeast, Northern Central, Central Coast and Southwest region. Households are less likely to be chronically poor if they have older head, head with higher years of schooling, working far from home, having motorbikes or mobile phones. We, however, find a few significant factors influencing households' entering and exiting poverty.

The rest of the paper is organized as follow. In Part 2, we describe the analytical framework and data used in the paper. Part 3 presents selected statistics and discusses estimation finding. The final part is, as usual, concluding remarks.

RESEARCH METHODOLOGY

There are several approaches to modeling poverty dynamics and each has its own merits and drawbacks. Component variance models, first used by Lillard and Willis (1978) capture the dynamics of income, decomposing income changes into permanent and transitory components and provide a more accurate assessment of a household long-term position. The problems of these models are that they can only work with one homogenous set of households at a time and do not address demographic or labor market events. Cappellari and Jenkins (2004) used an extension of first-order Markov model for income transition. The model can be used to predict

poverty rate, exit rate, re-entry rate and total time in poverty. The disadvantages with the model are that the assumption of first-order dynamics might not fit actual data and that it fails to capture instantaneous effects of changes in characteristics for poverty status. Biewen (2004) proposes a dynamic discrete choice model which reveals the way past poverty can have an indirect effect on future poverty via feedback to employment and household formation decision. This model, however, also have limitations in household composition equation and in assumption about effects of poverty experience on households.

In this paper, we follow the spells approach of modeling poverty dynamics as in Bane and Ellwood (1986) and Stevens (1994, 1999). Due to its simplicity, the model is widely applied in studies of poverty dynamics. Yaqub (2002) distinguish between two types of poverty: chronic poverty and transient poverty. Chronic poverty is the status of households that remain poor during a certain period while transient poverty refers to the fluctuation of household status exiting or re-entering poverty in that period. A household can be in status of chronic poverty, poverty exit, poverty re-entry or non-poverty. A transition matrix is used to model such household poverty dynamics. Then, a standard multinomial logit framework can be employed to examine poverty dynamics determinants.

The multinomial logit framework is the extension of the logit model when there are more than two outcomes. If we denote Y as the outcome variable taking on integer values from 0 to J and X as a set of K explaining variables. The multinomial logit model is as follow (Wooldridge, 2010):

$$P(Y = j | X) = \exp(X\beta_j) / \left[1 + \sum_{h=1}^J \exp(X\beta_h) \right] \quad \text{for } j=1, \dots, J.$$

Where β is the $(K \times 1)$ vector of parameters.

The above model is estimated by maximum likelihood. The conditional log likelihood for observation i can be written as

$$l_i(\beta) = \sum_{j=0}^J 1[Y_i = j] \log [p_j(X_i, \beta)]$$

And we estimate β by maximizing $\sum_{i=1}^N l_i(\beta)$, with N is the number of observations. McFadden (1974) has proved that the log-likelihood function is globally concave and thus the maximization problem can be solved.

In the case of poverty dynamics modeling, the multinomial logit model is designed with four outcomes and a set of explaining variables, including demographic variables, geographical variables, employment status variables, land ownership/leasing variables and infrastructure variables. Detailed list of variables used is in Table 1.

Table 1: Variables in multinomial logit regression

Variable	Definition
Female HH head	Dummy variable (1 if female head, 0 otherwise)
Household size	Number of household members
Dependency Ratio	Ratio of children and old people in HH
Age of HH head	Age of Household head
HH head schooling years	Number of years HH head in school
Single-person HH head	Dummy variable (1 if HH head is divorced or his/her spouse is dead)
HH head working far from home	Dummy variable (1 if HH head working far from home, 0 otherwise)
HH head accessing internet	Dummy variable (1 if HH head can access internet, 0 otherwise)
Northwest	Dummy variable (1 if HH is in Northwest region)
Northeast	Dummy variable (1 if HH is in Northeast region)
Northern Centrals	Dummy variable (1 if HH is in Northern Central)
Southern Central Coast	Dummy variable (1 if HH is in Southern Central Coast)
Central Highlands	Dummy variable (1 if HH is in Central Highlands)
Southeast	Dummy variable (1 if HH is in Southeast)
Southwest	Dummy variable (1 if HH is in Southwest)
Self-employed household	Dummy variable (1 if HH head work for himself)
Working for private sector	Dummy variable (1 if HH head works in private sector)
Working for public sector	Dummy variable (1 if HH head works in public sector)
HH head in agriculture	Dummy variable (1 if HH head works in agriculture)
HH head in service sector	Dummy variable (1 if HH head works in service sector)

Table 1...

HH head receiving wage	Dummy variable (1 if HH head works for others to get wage)
HH head unemployed	Dummy variable (1 if HH head is unemployed)
HH head receiving allowance	Dummy variable (1 if HH head is receiving allowance from State budget)
Land area for short-term crops	The area of HH land for short-term crops
Land area for aquaculture	The area of HH land for aquaculture
Rent land for production	Dummy variable (1 if HH have to pay rent for their land)
Leasing land	Dummy variable (1 if HH has land to lease to others)
Having mobile phone	Dummy variable (1 if HH has mobile phone)
Having motorbike	Dummy variable (1 if HH has motorbike)
Listening to radio	Dummy variable (1 if HH often listen to public radio program on production knowledge)
Accessing electricity system	Dummy variable (1 if HH has electricity)
Accessing water system	Dummy variable (1 if HH has access to public treated water system)
Toilets below sanitary standard	Dummy variable (1 if HH has toilets below sanitary standard)

The above model is then applied to sample of 1581 households of ethnic minorities in Vietnam using Vietnam Living Standard Survey 2016 by. Vietnam has 54 ethnic groups and by ethnic minorities, we mean ethnic groups other than King and Hoa (Chinese origin). The poverty position matrix is constructed based on households' responses on whether they are classified as poor in 2014 and in 2016. A household is defined as in chronic poverty if it is poor in both years. A household is defined as poverty exit if it is poor in 2014 but not poor in 2016 whereas a poverty re-entry household is not poor in 2014 but poor in 2016. A non-poverty household is not poor in both years.

ANALYSIS AND FINDINGS

The poverty transition matrix of the data is shown in Table 2. We can see that in the period 2014-2016, about 27% of households remain poor during the period. Only 5% of households

could escape from poverty while 8.8% re-entered poverty. Non-poverty households accounted for roughly 59%. Some characteristics of the households are showed in Table 3.

Table 2: Poverty transition matrix of ethnic minorities in 2014-2016

	Number of Households	Share (%)
Chronic poverty	430	27.2
Poverty Exit	80	5.06
Poverty Entry	139	8.79
Non-poverty	932	58.95

Source: VLHSS 2016

We note from Table 3 that the proportion of chronically poor households is highest in Southern Central Coast (44.64%), followed by Northern Central (41.74%). The Southern Central Coast also features high proportion of households exiting and re-entering poverty. The Southwest has quite low proportion of poverty re-entry while that of exiting poverty is quite high. There are no poor households in Red River Region. Regarding demographic characteristics, chronic poor and re-entering poor households have, on average, higher dependency ratio. The heads in these households are also older than those in the other households. The number of head schooling year is lower in chronic poor household.

Table 3: Selected characteristics of ethnic households by poverty status

	Chronic poverty	Poverty exit	Poverty entry	Non- poverty
Age of HH head	43	45.4	42.9	47.2
Household size	4.5	4.2	4.5	4.3
Dependency ratio (%)	47.3	37.3	42.2	37
Northwest (% of HH)	31.44	5.24	9.83	53.49
Northeast (% of HH)	23.17	4.55	10.3	61.98
Red River delta	0	0	0	100
Northern Central (% of HH)	41.74	1.74	13.91	42.61
Southern Central Coast	44.64	10.71	8.93	35.71
Central Highlands	29.55	5	6.82	58.64
Southeast	10.26	0	0	89.74
Southwest	16.55	9.35	1.44	72.66
Schooling years of HH head (mean)	3.95	4.69	4.73	6.4

Source: VLHSS 2016

Table 4 presents marginal effects from multinomial logit regression with chronic poverty household and non-poverty households serving as base categories, respectively. We find household size, dependency ratio, living in the Northwest, the Northeast, Northern Centrals, Southern Central Coast and Highlands, lack of land are factors statistically associated with chronic poverty. Bigger household size and higher dependency ratio mean heavier burden on household livelihood. Most of the above regions are mountainous while the Southern Central Coast has little agriculture land and often faces with drought. Households are less likely in chronic poverty if their heads are older, have higher schooling years, working far from home or working for public sector and have motorbikes. Older household head might mean the household is more established with long-term accumulation of assets, wealth and experience, so less likely in chronic poverty. Schooling years can be associated with better knowledge and training, which often go with better livelihood.

Households are less likely to escape from poverty if they have high dependency ratio and lack of production land. But they have higher probability to exiting poverty if they have motorbikes, a convenient means of transportation in Vietnam. For household falling back into poverty, Table 4 shows that if a household has a female head, has motorbikes or lives in the Southwest, it is less likely to re-enter poverty. On the other hand, if household head is single-person or the household has poor-condition toilet, it is more likely to fall back into poverty. A single-person household is likely to re-enter poverty since it loses an important source of income from the spouse, while toilet condition might present the household wealth or education.

Table 4: Marginal Effects of Explaining Variables on HH probability
to fall into different poverty status

Variable	Chronic Poverty	Poverty Exit	Poverty Re-entry
Female HH head	0.06	0.03	-0.09**
Household size	0.02***	0.001	-0.002
Dependency Ratio	0.1**	-0.04**	0.005
Age of HH head	-0.12***	-0.01	-0.02
HH head schooling years	-0.007**	0.006	-0.002
Single-person HH head	-0.03	0.008	0.07*
HH head working far from home	-0.31*	0.05*	0.11
HH head accessing internet	-0.04	-0.1	-0.03
Northwest	0.2**	0.05	-0.03
Northeast	0.19**	0.03	-0.008
Northern Centrals	0.22**	-0.008	0.009

Table 4...

Southern Central Coast	0.21**	0.08	-0.05
Central Highlands	0.14	0.04	-0.05
Southeast	0.71	-0.61	-1.08
Southwest	0.18*	0.08	-1.18**
Self-employed household	-0.02	-0.002	-0.008
Working for private sector	0.07	-0.05	-0.02
Working for public sector	-0.13	0.005	-0.08
HH head in agriculture	0.01	-0.003	0.06
HH head in service sector	-0.02	0.009	-0.02
HH head receiving wage	0.01	-0.007	0.01
HH head unemployed	0.003	-0.04	0.05
HH head having pension	-0.6	0.62	1.02
HH head receiving subsidy	0.4	0.41	0.6
Land area for yearly crops	-0.0001	-0.0001	-0.0001
Land area for aquaculture	-0.004	-0.005	-0.0005
Rent land for production	0.18***	-0.01*	0.02
Leasing land	-0.004	0.04	0.09
Having mobile phone	-0.04***	0.002	0.01
Having motorbike	-0.12***	0.005*	-0.03*
Listening to radio about production	0.01	-0.01	-0.004
Accessing electricity system	-0.05	0.01	-0.008
Accessing water system	-0.07	0.005	0.05
Using water treatment system	-0.19**	-0.01	0.06
Toilets below sanitary standard	0.09***	-0.008	0.03**

Source: Author's estimation

CONCLUSION

In this paper, we attempt to examine poverty dynamics among ethnic minorities in Vietnam, using a multinomial framework. We find that chronic poverty is influenced by a numbers of factors such as household size, dependency ratio, number of schooling years and geographical location. However, only a few variables explain households moving in and out of poverty. That might be due to the limited observations of households exiting and re-entering poverty, compared to chronic poor and non-poor households. The findings suggest that anti-poverty effort should focus on reducing household size and dependency ratio, improving education and introducing job opportunities to ethnic housholds, even in far away locations.

There is still room for improvement of this study. More explaining variables can be added, such as variables on household access to extension, technology, markets, etc., which are not available to us at this time. Also, besides quantitative examination, a focused, qualitative investigation might be necessary to further explore poverty dynamics among ethnic groups.

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