

Hung Manh Nguyen; Nguyen Tuan Anh

Article

Investigating the determinants of household welfare in the Central Highland, Vietnam

Cogent Economics & Finance

Provided in Cooperation with:

Taylor & Francis Group

Suggested Citation: Hung Manh Nguyen; Nguyen Tuan Anh (2019) : Investigating the determinants of household welfare in the Central Highland, Vietnam, Cogent Economics & Finance, ISSN 2332-2039, Taylor & Francis, Abingdon, Vol. 7, Iss. 1, pp. 1-11, <https://doi.org/10.1080/23322039.2019.1684179>

This Version is available at:

<https://hdl.handle.net/10419/270692>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<https://creativecommons.org/licenses/by/4.0/>

Investigating the determinants of household welfare in the Central Highland, Vietnam

Hung Manh Nguyen & Tuan Anh Nguyen |

To cite this article: Hung Manh Nguyen & Tuan Anh Nguyen | (2019) Investigating the determinants of household welfare in the Central Highland, Vietnam, Cogent Economics & Finance, 7:1, 1684179, DOI: [10.1080/23322039.2019.1684179](https://doi.org/10.1080/23322039.2019.1684179)

To link to this article: <https://doi.org/10.1080/23322039.2019.1684179>



© 2019 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.



Published online: 30 Oct 2019.



Submit your article to this journal [↗](#)



Article views: 3738



View related articles [↗](#)



View Crossmark data [↗](#)



Citing articles: 7 View citing articles [↗](#)



Received: 20 December 2018
Accepted: 06 October 2019
First Published: 24 October 2019

*Corresponding author: Tuan Anh Nguyen, University of Economics and Business, Vietnam National University, Hanoi, Vietnam
E-mail: natuan@vnu.edu.vn

Reviewing editor:
Robert Read, University of Lancaster,
UK

Additional information is available at
the end of the article

GENERAL & APPLIED ECONOMICS | RESEARCH ARTICLE

Investigating the determinants of household welfare in the Central Highland, Vietnam

Hung Manh Nguyen¹ and Tuan Anh Nguyen^{*2}

Abstract: To provide policy implication for improving household welfare, one should understand which characteristics of households in a specific location they live, enable them to raise their welfare levels. This paper uses micro-econometric models for investigating the determinants of household welfare in the Central Highland, Vietnam using the recent data from the Vietnam Household Living Standard Survey in 2016. Despite the relative simplicity, rich information is obtained from its use on cross-sectional survey data. Both descriptive statistics and regression analysis were employed in the study. Ordinary Least Square (OLS) and a Logit estimators were used to examine factors affecting household income and poverty incidence, respectively. Results specific to the region include: a substantial contribution of nonfarm self-employment and education to household income and poverty eradication; wage employment is positively associated with poverty alleviation but not per capita income; and only some types of land were positively related to income and poverty reduction. The findings suggest that policies for poverty reduction should aim at improving the access of the poor to education and nonfarm employment.

Subjects: Development Studies; Regional Development; Rural Development; Economics and Development; Economics; Political Economy

Keywords: ethnic minorities; nonfarm participation; household income; Central Highland
Subjects: I 32; O12; J15.

ABOUT THE AUTHORS

Dr Hung Manh Nguyen is a senior lecturer at the Ho Chi Minh National Academy of Politics. He teaches several courses for Master and PhD Students, including political economy and international relationship.

Dr Tuan Anh Nguyen is a senior lecturer in financial economics at the University of Economics and Business, Vietnam National University, Hanoi. He teaches several courses at both under and graduate levels, including micro-economics and micro-economics of finance and banking.

PUBLIC INTEREST STATEMENT

This paper uses micro-econometric models for investigating the determinants of household welfare in the Central Highland, Vietnam using the recent data from the Vietnam Household Living Standard Survey in 2016. Despite the relative simplicity, rich information is obtained from its use on cross-sectional survey data. Results specific to the region include: a substantial contribution of nonfarm self-employment; the ethnicity and education of household heads to household income and poverty reduction; the gender of household heads and wage employment strongly affect poverty but not per capita income; and only some types of land were positively related to income and poverty reduction. The findings suggest that policies for poverty reduction should aim at improving the access of ethnic minorities to education and nonfarm employment.

1. Introduction

Vietnam has attained great achievements poverty reduction over the past two decades. The proportion of population living below the poverty line reduced significantly from 55% in 1993 (Haughton, Haughton, & Phong, 2001) to 18.1% in 2004 and 5.8% in 2016 (GSO, 2018). Despite prominent progress in the overall poverty alleviation, including a steady reduction in ethnic minority poverty, there exists a large and increasing gap in living standards and poverty rates across geographical regions within the country. In 2016, there was still about 13.8% and 9.1% of the population living below the poverty line in the Northwest and Central Highland regions, respectively. By contrast, the corresponding figures for the Red river and Mekong river deltas were only about 2.4% and 5.2% (GSO, 2018).

One of the main objectives of economic development is the alleviation of poverty and more generally, the improvement of household welfare. To obtain this end it is vital to understand what factors affect household welfare. The results of such an investigation would serve as a guide to policy implications in developing countries (Glewwe, 1991). An increasing number of studies have examined factors affecting income or poverty among rural households (Nguyen & Tran, 2013, 2018; Nguyen, Van den Berg, & Lensink, 2011; Viet, 2008); peri-urban or urban households (Doan & Tran, 2015; Tran, Lim, Cameron, & Van, 2014) or ethnic minorities (Tran, 2015b; Tran, Nguyen, Vu, & Nguyen, 2015) in Vietnam.

The literature in Vietnam shows that while many studies have focused on rural areas or some geographical regions of Vietnam, to the best of our knowledge, limited evidence exists on the factors determining income and poverty among households in the Central Highland region. The Central Highland region of Vietnam has faced some specific challenges in terms of the overall welfare of the population and in particular among ethnic minority groups. The region is one of the two poorest and predominantly ethnic minority regions in Vietnam (World Bank [WB], 2013). Thus, a better understanding of what factors influencing household welfare in this poorest region is much of importance, when designing or implementing policy interventions to improve their economic welfare. The current study was conducted to fill in this gap in the literature.

The main purpose of this study was to investigate the socio-economic determinants of household welfare among households in the Central Highland, Vietnam. This is the first study to analyze factors affecting both (i) household income; and (ii) poverty status using a microdata set from a recent survey of Vietnam Household Living Standard Survey in 2016. Therefore, the study contributed to the extant literature by providing the first econometric evidence for factors affecting household welfare in one of the poorest regions of Vietnam. We find a substantial contribution of nonfarm self-employment and education to household income and poverty eradication; wage employment is positively associated with poverty alleviation but not per capita income; and only some types of land were positively related to income and poverty reduction. The findings suggest that policies for poverty reduction should aim at improving the access of the poor to education and nonfarm employment. The findings suggest that policies for poverty reduction should aim at improving the access of the poor to education and nonfarm employment.

The paper is structured into five sections. The next section provides a brief literature review on determinants of household welfare. The third section describes data source and econometric models used in this study. The fourth section presents the determinants of household welfare while the conclusion and policy implications are given in the final section.

2. Data and methods

2.1. Data source

The secondary data from the Vietnam Household Living Standard Survey (VHLSS) 2016 were utilized for the current study. The 2016 VHLSS was conducted by General Statistical Office of Vietnam (GSO). The VHLSS was conducted by the General Statistics Office of Vietnam (GSO) with

technical assistance from the World Bank. The 2016 survey covers around 46,000 households in 10,339 communes/wards. The sample of the VHLSS is selected in the way to represent the entire country at national, regional, urban, rural and provincial levels.

Data on households and individuals consist of basic demography, employment, education, health, income, housing, fixed assets and durable goods, and various types of land. In this study, we used data for the Central Highland region, including about 3,229 households that were surveyed in five provinces, namely Kon Tum, Gia Lai, Dac Lac, Dac Nong and Lam Dong. Household income data are calculated from various sources (both cash and in kind), namely crops, forestry, animal husbandry, aquaculture, wage work, non-farm self-employment, pensions, rentals, interests, transfers, remittances and other sources. It should be noted that both incomes were measured accounting for own consumption of products produced by households.

2.2. Data analysis

The main statistical analyses applied in this study were descriptive statistics and regression analyses. First, households were classified as poor and non-poor households using the poverty line of 630 thousand dongs per capita per month for the rural area and 780 thousand dongs per capita per month for the urban area (GSO, 2018). Then, we compare the means of household characteristics and assets between the two groups using Analysis of Variance (ANOVA) models. In addition, a chi-square test was utilized to analyze whether a statistically significant relationship existed between two categorical variables such as the type of households (poor and non-poor households) and the types of employment.

Because household income per capita is a continuous variable, econometric analysis using ordinary least squares (OLS) regression models was used to analyze relationships between per capita household income and various explanatory variables (Model 1). Following several studies in Vietnam (Nguyen & Tran, 2018; Nguyen et al., 2011; Tran, 2015b), a number of explanatory variables were selected as being important to household income in our regression analysis. These were (i) household size, dependency ratio, gender, age and education of household head; (ii) owned farmland size per capita; the log of total values of all fixed assets; (iii) participation in non-farm self-employment and wage employment activities; (iv) the presence of means of transportation, paved roads, post offices, electricity, local markets, and (v) the provincial dummy variables which control for provincial fixed effects. The definitions and measurements of included variables are given in Table 1.

We also examine factors affecting the likelihood of a household falling in poverty using a logit model (Model 2), where the dependent variable (poverty status) is a binary variable that has a value of one if a household was classified as poor and a value of zero otherwise. Model 2 uses the same explanatory variables as Model 1.

$$\text{Model 2 : Household income per capita} = \theta_1 \text{demographics} + \theta_2 \text{education} + \theta_3 \text{land} + \theta_4 \text{wage employment} + \theta_5 \text{nonfarm employment} + \theta_6 \text{provincial dummy variables} + \varepsilon \quad (1)$$

$$\text{Model 2 : Poverty status} = \theta_1 \text{demographics} + \theta_2 \text{education} + \theta_3 \text{land} + \theta_4 \text{wage employment} + \theta_5 \text{nonfarm employment} + \theta_6 \text{provincial dummy variables} + \varepsilon \quad (2)$$

We addressed the heteroscedasticity by transforming income per capita and the size of land into their natural logarithms. In addition, the option “robust” in STATA was used to produce robust standard errors in both models. In order to identify possible indications of multicollinearity, a correlation matrix analysis and an analysis of VIF (variance inflation factor) have been performed. The results confirm that the models do not suffer from the multicollinearity problems.

Table 1. Definition and measurement of explanatory variables included in the models

Explanatory variables	Definition and measurement	Expected sign
Household size	Total household members (persons)	-
Dependency ratio	Proportion of dependents in the households	-
Age	Age of household head (years).	±
Ethnicity	The ethnicity of household head: 1 = Kinh/Hoa; 0-minorities	±
Gender	Whether or not the household head is male (Male = 1; female = 0).	±
Education	The number of formal schooling years of household heads	+
Annual crop land	The size of annual crop land per capita (100 m ² per person)	+
Perennial crop land	The size of perennial crop land per capita (100 m ² per person)	+
Forestry land	The size of forestry land per capita (100 m ² per person).	+
Water surface for aquaculture	The size of water surface for aquaculture per capita (100 m ² per person)	+
Wage employment	Whether or not the household engaged in paid jobs	+
Nonfarm self-employment	Whether or not the household took up nonfarm self-employment	+
Urban/rural	Whether or not the household lived in urban areas?	+

Note: Dependency ratio is calculated by the number of family members aged under 15 and over 59, divided by the number of female members aged 15-59.

3. Results and discussion

3.1. Background on household characteristics and income

Table 2 shows that there are considerable differences in the mean values of almost household characteristics between poor and non-poor households. The King people (the major ethnicity) accounted for about 70% of the non-poor, whereas the corresponding for the poor was only 17%. This suggests that ethnicity was closely linked with poverty status. The non-poor had a smaller household size and lower dependency ratio than that of the poor. The differences in the age and education of heads between the two groups were highly statistically significant. On average, the heads of non-poor households were approximately 2 years older and had two more years of schooling than did those of non-poor households. Interestingly, the participation rate in wage employment was found to be slightly higher for the poor than that for the non-poor (70% vs 64%), while the participation rate in nonfarm self-employment was much higher for the non-poor than that for the poor (25% vs 5%). Also, the data in Table 2 indicate that the percentage of households who had at least one member being a member of communist party or farmer association or women's union was higher among the non-poor than among their counterparts.

Furthermore, Table 2 reveals that the poor earned a very low level of per capita income, which is just equivalent to one-fifth of that earned by the non-poor. The differences in all types of land and the total value of durable assets between the two groups are found to be highly statistically significant. The area of annual cropland and forestland owned by poor households was quite bigger than that owned by non-poor households. This might be explained by the fact that there were several policies that allocated forestland to the ethnic minority poor in this region (Nguyen & Tran, 2018). However, the non-poor had much more perennial cropland than did the poor. The non-poor also had a larger size of aquaculture land than that of the poor. The non-poor also had a total value of durable assets that was nearly five times as much as that of the poor. Substantial

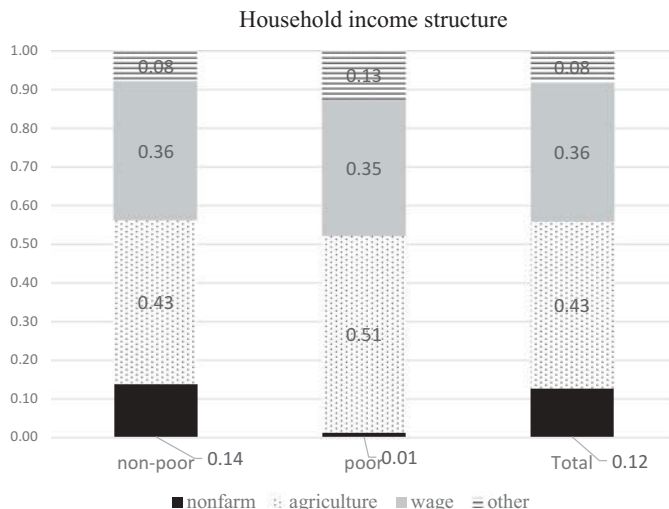
Table 2. Descriptive statistics of household characteristics

Group	Non-poor		Poor		Whole	
	Mean	SD	Mean	SD	Mean	SD
Explanatory variables						
Monthly household income per capita***	2896	6430	520	111	2679	6167
Value of current durable assets***	49,112	107,420	9032	12,035	45,450	103,107
Gender of household heads**	0.79	0.40	0.75	0.43	0.79	0.41
Age of household heads***	48.59	12.99	46.35	15.38	48.39	13.24
Marital status of household heads	0.01	0.12	0.01	0.08	0.01	0.12
Education of the household heads***	8.63	3.93	5.58	3.14	8.42	3.96
Ethnicity of household heads***	0.69	0.46	0.17	0.37	0.64	0.48
Dependency ratio***	0.34	0.27	0.47	0.23	0.35	0.27
Household size***	4.04	1.60	5.12	2.12	4.14	1.68
Wage employment***	0.64	0.48	0.70	0.46	0.65	0.48
Nonfarm self-employment***	0.25	0.43	0.05	0.23	0.23	0.42
Communist party member***	0.07	0.26	0.01	0.10	0.07	0.25
Farmer association member***	0.28	0.45	0.23	0.42	0.27	0.45
Women union member***	0.08	0.27	0.04	0.19	0.07	0.26
Annual cropland***	3155	9059	5614	6674	3380	8895
Perennial cropland***	6429	10,246	2687	4094	6087	9903
Forestland***	442	4272	1371	6807	527	4568
Aquaculture land***	42	989	4	38	39	943
Urban/rural regions**	0.31	0.46	0.19	0.39	0.30	0.46
Observation	2,934		295		3,229	

Note: SD: standard deviations. *, **, *** mean statistically significant at 10%, 5% and 1%, respectively. Income and durable assets measured in 1,000 VND (Vietnam Dong). 1 USD was equal to about 21,000 VND in 2016.

Figure 1. Household income structure by poverty status.

Source: author's own calculation from the 2016 VHLSS.



differences in some household characteristics and assets between the two groups were expected to be closely associated with variations in household income and poverty status.

Figure 1 shows that agriculture income contributed the largest share of total household income for the whole sample as well as for each of the income group. Combined together, the income from crop, livestock, forestry, and aquaculture accounted for nearly 44% of total income, followed by wage income, nonfarm self-employment income and other incomes. A closer look at the income structure of income groups indicates that the agricultural income share of the poor is larger than that of the non-poor, while the share of nonfarm self-employment income and other incomes is much greater for the non-poor than that of the poor. Interestingly, the wage income share is almost the same for both income groups. The data suggest that differences in income sources between the two groups might account for the differences in income per capita between them.

3.2. Determinants of household welfare

Table 3 reports the results from the income model. The model explains roughly 50% of the variation in household income. In addition, many coefficients are highly statistically significant ($p < 0.05$) with their signs as expected. As shown in Table 3, both household size and dependency ratio are negatively associated with income per capita. Similar results were reported by Jansen, Pender, Damon, Wielemaker, and Schipper (2006) and Tran, Tran, Tran, and Nguyen (2018) who found that having more dependent members and more family members in general tends to reduce per capita income. For instance, an additional family member would be associated with a decrease in income per capita of about 9%. Not as expected, the age and gender of household head were found not to be linked with household income. However, we found that the ethnicity of household heads has a strong impact on household income. Specifically, the income per capita would be 33% higher for a household with the head being in the ethnic majority groups (Kinh/Hoa) than for a household with the head belonging to ethnic minorities. Interestingly, our study reveals that having a communist party membership is positively associated with per capita income but this is not the case for a membership of women's union or farmer association.

As expected, we find that education has a positive effect on household income per capita. An additional year of formal schooling year would increase per capita income by 5.8%. The finding supports previous evidence that the education of household heads plays an important role in improving household income in Vietnam's Northcentral region (Nguyen & Tran, 2018) and Northwest region (Tran et al., 2018). The coefficient of nonfarm self-employment indicates that

Table 3. Factors associated with household income

Explanatory variables	Unstandardized coefficient	Robust standard errors	Standardized coefficient	P-value
Gender of household heads	-0.004	0.036	-0.002	
Age of household heads	0.006	0.001	0.091	***
Marital status of household heads	-0.053	0.091	-0.008	
Education of the household heads	0.058	0.003	0.297	***
Ethnicity of household heads	0.331	0.040	0.193	***
Dependency ratio	-0.468	0.047	-0.161	***
Household size	-0.092	0.009	-0.185	***
Wage employment	-0.019	0.033	-0.012	
Nonfarm self-employment	0.273	0.031	0.153	***
Annual cropland	-0.022	0.009	-0.055	**
Perennial cropland	0.052	0.007	0.152	***
Forestland	-0.011	0.020	-0.011	
Aquaculture land	0.088	0.028	0.041	***
Urban/rural regions	0.176	0.041	0.106	***
Communist party member	0.280	0.050	0.096	***
Farmer association member	-0.044	0.031	-0.025	
Women union member	-0.038	0.048	-0.013	
Gia Lai	0.123	0.055	0.063	**
Dac Lac	-0.065	0.052	-0.037	
Dac Nong	0.001	0.059	0.000	
Lam Dong	0.088	0.053	0.047	
Constant	6.921	0.093		
Observations	2,858			
R-squared	0.50			
Prob > F	0.0000			

Notes: *, **, *** mean statistically significant at 10%, 5% and 1%, respectively. SE: robust standard errors

holding all other variables constant, a household with nonfarm self-employment, on average, would have an income per capita level approximately 27% higher than that of those without nonfarm self-employment. The finding is consistent with several studies in Vietnam (Tran, 2015a, 2015b; Tran et al., 2018) and other developing countries (Rigg, 2006). However, our study found no link between wage employment and household income, which does not support other studies showing that wage employment is positively associated with household income in the Northwest region (Tran, 2015b) and the Northcentral region of Vietnam (Nguyen & Tran, 2018). The difference might be explained by the fact that wage employments might bring lower returns compared to other economic activities in the study region. Also, the difference might result from the difference in the study context, time and coverage of the research sample.

Regarding the role of production land in household income, the study found that not all types of land are associated with household income. While both aquaculture and perennial croplands have a positive effect on household income, this effect was not found for the case of forestland and annual cropland. The finding is in line with that in the Northwest region (Tran et al., 2018) but contrast with that in Nguyen and Tran (2018)'s study which found that forestland has a significantly positive effect on household income in the Northcentral region.

Table 4. Logit estimation for determinants of poverty incidence

Explanatory variables	Coefficient	SE	Odds ratio	SE	P-value
Gender of household heads	-0.530	0.265	0.589	0.156	**
Age of household heads	-0.023	0.008	0.977	0.007	***
Marital status of household heads	-0.418	0.940	0.658	0.618	
Education of the household heads	-0.109	0.027	0.897	0.024	***
Ethnicity of household heads	-1.305	0.270	0.271	0.073	***
Dependency ratio	1.856	0.471	6.396	3.010	***
Household size	0.287	0.066	1.333	0.088	***
Wage employment	-0.647	0.243	0.524	0.127	***
Nonfarm self-employment	-1.338	0.421	0.262	0.110	***
Annual cropland	0.055	0.051	1.057	0.054	
Perennial cropland	-0.167	0.069	0.846	0.058	**
Forestland	0.056	0.098	1.058	0.103	
Aquaculture land	-0.186	0.236	0.830	0.196	
Urban/rural regions	0.413	0.351	1.512	0.531	
Communist party member	-0.821	0.664	0.440	0.292	
Farmer association member	-0.126	0.240	0.881	0.212	
Women union member	-0.684	0.531	0.505	0.268	
Gia Lai	-0.113	0.388	0.893	0.346	
Dac Lac	-0.009	0.375	0.991	0.372	
Dac Nong	0.073	0.450	1.076	0.485	
Lam Dong	-0.703	0.494	0.495	0.245	
Constant	-0.799	0.636	0.450	0.286	
Observations	2,858				
Pseudo R2	2.54				
Prob > chi2	0.0000				

Notes: *, **, *** mean statistically significant at 10%, 5% and 1%, respectively. SE: robust standard errors

We also used the standardized or beta coefficient to show which factors are the major contributor to household income. The Beta coefficients in Table 3 show that the association between education and income was 0.297 standard deviations which is higher than that for the rest of the factors in the model. This indicates that education is the biggest contributor to household income. Ethnicity and nonfarm self-employment are also major contributors to income, with the beta coefficient is 0.193 and 0.153 standard deviations, respectively. However, there are two other factors, household size and dependency ratio, with the corresponding beta coefficient is -0.185 and -0.163, suggesting that an increase in these factors would result in substantial decreases in household income.

Table 4 reports the estimation results from the poverty model. The results indicate that many explanatory variables are statistically significant at the 10% or lower level, with their signs as expected. In addition, in addition, the Pseudo-R² = 0.254 and is highly significant, suggesting that this model has strong explanatory power (Louviere, Hensher, & Swait, 2000). Interestingly, a comparison of the results in Table 3 and those Table 4 reveals that some household-related factors determine both household income while some others affect only either per capita income or poverty status. This suggests that previous poverty studies using only a household income model or a poverty model might not adequately evaluate or even ignored important impacts of some factors on household welfare. For example, both household size and dependency ratio were found to reduce per capita income and increase the chance of falling in poverty, while the gender

of household heads affects poverty status but not per capita income. An additional member increases the odds of a household remaining in poverty by around 33%, holding all other things constant. The gender evidence in Table 4 indicates that the odd of being poor is about 40% lower for a male-led household than for a female-led household, holding the other variables in the model constant in the model.

The results 4 confirm that both the ethnicity and education of household heads have a strong reducing effect on poverty. The odd of a household being poor was about 73% lower for a household with the head belonging to the Kinh/Hoa ethnicity group than those with the head being in the ethnic minority population. For a one-year increase in the average years of formal schooling of household head, it is expected to see about a 11% decrease in the odds of a household being poor, holding all other factors constant. The finding is consistent with previous studies (Nguyen & Tran, 2018; Tran et al., 2015) which showed that education and ethnicity were major factors affecting poverty in some poorest regions of Vietnam.

While the household income model showed that only nonfarm self-employment was positively associated with per capita income in Table 3, both wage and nonfarm self-employment were found to reduce the probability of households falling in poverty. For example, holding all else constant, the odds of being poor would be around 48% lower for a household taking up wage employment than another household without wage employment. A similar but stronger impact was also recorded for a household participating in nonfarm self-employment, with the corresponding odds are 74% lower than another household without nonfarm self-employment. These are consistent with the findings in Vietnam (Pham, Anh Tuan, & Thanh, 2010; Tran, 2015a) and other developing countries (Haggblade, Hazell, & Reardon, 2010; Rigg, 2006). However, our study found no relationship between participation in any formal group and poverty status. The result differs from previous findings which indicated that holding a membership of co-operation reduced the risk of falling into in Armenia (Bezemer & Lerman, 2004) or a household holding a membership of farmer association was less likely to be poor in the Northwest region, Vietnam (Tran et al., 2015).

Regarding the role of production land in poverty reduction, the results show that holding more perennial cropland would reduce the likelihood of being poor while a similar impact was not found for the case of annual, aquaculture and crop croplands. The finding is not in line with that in the Northwest region which households having more annual cropland, forestland and aquaculture land were less likely to be poor (Tran et al., 2015). The coefficients of provincial dummy variables are not statistically significant at the conventional level (10%), suggesting that the probability of households falling in poverty is not statistically different across provinces, even after controlling for other factors in the model.

4. Conclusion and policy implications

The objective of the current study was to examine the socio-economic determinants of household welfare among households in the Central Highland, Vietnam. Using an updated dataset from the 2016 VHLSS, this study provides the first evidence of factors affecting per capita and poverty status of households in the second poorest region of Vietnam. Interestingly, we find that some factors affect both household income and poverty, while some others affect either income or poverty status. We also used the standardized coefficients to identify which factors are major contributors to household income in the study region.

First, our micro-econometric analysis confirms that education and nonfarm self-employment were major contributors to household income and poverty reduction. In addition, while wage employment is found to have no relationship with household income, it is negatively linked with poverty incidence. Second, the current study finds that different types of land play different roles in household income and poverty status. While the income effect is positive for both perennial cropland and aquaculture land, this effect is found to be negative for annual cropland and not statistically significant for forestland. Poverty status is negatively related to perennial cropland but not

associated with other types of land. Our research finding on the income and poverty effect of forestland is in line with that in the Northwest region but in contrast with that in the Northcentral region which found that forestland has a positive effect on income and poverty reduction. This difference may stem from differences in the quality of forestland or differences in the efficiency of forest management between geographic regions in Vietnam. This is an interesting topic offers for future research.

Our research findings provide some useful policy implications. While only perennial cropland is found to increase income and reduce poverty, land distribution policy should not be considered as the main approach to combat rural poverty because land is fixed in supply. Instead of this, improving the access of local households to nonfarm activities, either wage employment or nonfarm self-employment, should be viewed as a very practical policy for poverty eradication in the study area. The finding on the role of household size in income and poverty implies that reducing larger family sizes would help alleviate poverty in this region. International experience shows that family planning measures, among others, have been used as a powerful tool in reducing poverty in many developing countries (United Nations Population Fund, 2006). A policy implication here is that improving the National Target Program on Population and Family Planning is expected to be an effective way of combating poverty in the Central Highland region. Finally, the finding on the major role of education in improving household welfare suggests that the National Target Program on Education and Training should aim at ensuring sustained and improved access for the poor's children to education and training. This would help their next generation have more chance to take up lucrative jobs and improve their income.

Acknowledgements

This research is part of project TN 12/X02 entitled: "Promoting the inter-regional economic link between the Central Highland region and South Central provinces until 2030"

Funding

This work was supported by the Ministry of Science and Technology [TN 12/X02]; This research is part of project TN 12/X02 entitled: "Promoting the inter-regional economic link between the Central Highland region and South Central provinces until 2030".[TN 12/X02].

Author details

Hung Manh Nguyen
E-mail: hungmng@gmail.com¹
Tuan Anh Nguyen
E-mail: natuan@vnu.edu.vn²

¹ Department of Science Management, Ho Chi Minh National Academy of Politics, Hanoi, Vietnam.

² Faculty of Finance and Banking, University of Economics and Business, Vietnam National University, Hanoi, Vietnam.

Conflict of Interest

The authors declare that they have no conflict of interest in this research.

Citation information

Cite this article as: Investigating the determinants of household welfare in the Central Highland, Vietnam, Hung Manh Nguyen & Tuan Anh Nguyen, *Cogent Economics & Finance* (2019), 7: 1684179.

References

Bezemer, D. J., & Lerman, Z. (2004). Rural livelihoods in Armenia. *Post-communist Economies*, 16(3), 333–348. doi:10.1080/1463137042000257555
Doan, T. T., & Tran, T. Q. (2015). Credit participation and constraints of the poor in Peri-urban areas, Vietnam:

A micro-econometric analysis of a household survey. *Argumenta Oeconomica*, 34(1), 175–200.
Glewwe, P. (1991). Investigating the determinants of household welfare in Côte d'Ivoire. *Journal of Development Economics*, 35(2), 307–337. doi:10.1016/0304-3878(91)90053-X
GSO. (2018). *The result of the Vietnam household living standards survey 2016*. Hanoi, Vietnam: Statistical Publishing House.
Haggblade, S., Hazell, P., & Reardon, T. (2010). The rural non-farm economy: Prospects for growth and poverty reduction. *World Development*, 38(10), 1429–1441. doi:10.1016/j.worlddev.2009.06.008
Haughton, D., Haughton, J., & Phong, N. (2001). *Living standards during an economic boom*. Hanoi: UNDP and Statistical Publishing House.
Jansen, H. G., Pender, J., Damon, A., Wielemaker, W., & Schipper, R. (2006). Policies for sustainable development in the hillside areas of Honduras: A quantitative livelihoods approach. *Agricultural Economics*, 34(2), 141–153. doi:10.1111/agec.2006.34.issue-2
Louviere, J. J., Hensher, D. A., & Swait, J. D. (2000). *Stated choice methods: Analysis and applications*. Cambridge, UK: Cambridge university press.
Nguyen, C. V., & Tran, A. N. (2013). The role of crop land during economic development: Evidence from rural Vietnam. *European Review of Agricultural Economics*, 41(4), 561–582. doi:10.1093/erae/jbt032
Nguyen, C. V., Van den Berg, M., & Lensink, R. (2011). The impact of work and non-work migration on household welfare, poverty and inequality. *Economics of Transition*, 19(4), 771–799. doi:10.1111/ecot.2011.19.issue-4
Nguyen, T. V., & Tran, T. Q. (2018). Forestland and rural household livelihoods in the North Central Provinces, Vietnam. *Land Use Policy*, 79(2), 1–13. doi:10.1016/j.landusepol.2018.07.046
Pham, T., Anh Tuan, B., & Thanh, L. (2010). *Is nonfarm diversification a way out of poverty for rural households? Evidence from Vietnam in 1993–2006* (Poverty

- and Economic Poverty PMMA Working Paper 2010-17). Social Science Research Network.
- Rigg, J. (2006). Land, farming, livelihoods, and poverty: Rethinking the links in the rural South. *World Development*, 34(1), 180–202. doi:10.1016/j.worlddev.2005.07.015
- Tran, T. A., Tran, T. Q., Tran, N. T., & Nguyen, H. T. (2018). The role of education in the livelihood of households in the Northwest region, Vietnam. *Educational Research for Policy and Practice*, 1–15. doi:10.1007/s10671-018-9242-6
- Tran, T. Q. (2015a). Nonfarm employment and household income among ethnic minorities in Vietnam. *Economic Research-Ekonomska Istraživanja*, 28(1), 703–716. doi:10.1080/1331677X.2015.1087872
- Tran, T. Q. (2015b). Socio-economic determinants of household income among ethnic minorities in the North-West Mountains, Vietnam. *Croatian Economic Survey*, 17(1), 139–159.
- Tran, T. Q., Lim, S., Cameron, M. P., & Van, H. V. (2014). Farmland loss and livelihood outcomes: A microeconomic analysis of household surveys in Vietnam. *Journal of the Asia Pacific Economy*, 19(3), 423–444. doi:10.1080/13547860.2014.908539
- Tran, T. Q., Nguyen, S. H., Vu, H. V., & Nguyen, V. Q. (2015). A note on poverty among ethnic minorities in the Northwest region of Vietnam. *Post-communist Economies*, 27(2), 268–281. doi:10.1080/14631377.2015.1026716
- United Nations Population Fund. (2006). *Family planning and poverty reduction: Benefits for families and nations*. New York, USA: UNFPA
- Viet, C. N. (2008). Do foreign remittances matter to poverty and inequality? Evidence from Vietnam. *Economics Bulletin*, 15(1), 1–11.
- WB. (2013). *Not yet done: Vietnam's remarkable progress on poverty reduction and the emerging challenges*. Washington, DC: World Bank.



© 2019 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.

You are free to:

Share — copy and redistribute the material in any medium or format.

Adapt — remix, transform, and build upon the material for any purpose, even commercially.

The licensor cannot revoke these freedoms as long as you follow the license terms.

Under the following terms:

Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made.

You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.

No additional restrictions

You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits.



Cogent Economics & Finance (ISSN: 2332-2039) is published by Cogent OA, part of Taylor & Francis Group.

Publishing with Cogent OA ensures:

- Immediate, universal access to your article on publication
- High visibility and discoverability via the Cogent OA website as well as Taylor & Francis Online
- Download and citation statistics for your article
- Rapid online publication
- Input from, and dialog with, expert editors and editorial boards
- Retention of full copyright of your article
- Guaranteed legacy preservation of your article
- Discounts and waivers for authors in developing regions

Submit your manuscript to a Cogent OA journal at www.CogentOA.com

