XÁC ĐỊNH CÁC YẾU TỐ ẢNH HƯỞNG ĐẾN THU NHẬP VÀ CHI TIÊU CỦA CÁC HỘ DÂN TỘC THIỂU SỐ TẠI TÂY BẮC: TRƯỜNG HỢP TẠI HUYỆN LỤC YÊN, TỈNH YÊN BÁI

Dương Hoài An[1], Đào Quang Dũng[2], Đỗ Xuân Luận[3], Trần Quốc Tuấn[4]

Tóm tắt

Trong nghiên cứu này chúng tôi thu thập số liệu từ các cuộc phỏng vấn trực tiếp với 90 hộ gia đình tại ba xã của huyện trong năm 2017 và sử dụng phương pháp hồi quy đa biến để xác định các yếu tố ảnh hưởng đến thu nhập và chi tiêu của hộ. Kết quả cho thấy khả năng chi tiêu, đầu tư và tiền mặt ảnh hưởng rõ rệt và có ý nghĩa cao về mặt thống kê đến thu nhập của hộ, trong khi thu nhập và diện tích canh tác có tác động tích cực đến khả năng chi tiêu của hộ.

Từ khoá: *Thu nhập, chi tiêu, hộ gia đình, hồi quy đa biến, Yên Bái, Việt Nam*

DETERMINANTS OF HOUSEHOLD INCOME AND CONSUMPTION IN THE NORTH WEST OF VIETNAM: THE CASE OF ETHNIC MINORITY HOUSEHOLDS IN LUC YEN DISTRICT, YEN BAI PROVINCE

Abstract

The current study uses surveyed data from 90 households in Luc Yen district, Yen Bai province and the OLS method to examine key determinants of household income and consumption of ethnic minority households. The results show that consumption and cash significantly (at one per cent level) drive household income. In addition, income and agricultural land are the key drivers of household expenditure.

Keywords*: Income, consumption, households, multiple regressions, OLS, Yen Bai, Vietnam.*

1. Introduction

Ethnic minority groups account for approximately 75 per cent of the population in the North West of Vietnam including Luc Yen district in Yen Bai province. Yen Bai is one of the poorest provinces among those in the North West. Particularly, poverty rates in the province in 2014, 2015 and 2016 were 21.4, 19.7 and 17.5 per cent, respectively while those in Vietnam were 8.4, 7.0 and 5.8 per cent, respectively (GSO, 2019). The majority of the ethnic minority groups reside in the province is poor and identifying determinants of their income and consumption is essential to heop eliminate poverty (Tung, Cuong, Thinh, Nhung, & Van, 2017; Yen Bai Province, 2019). The current study uses data obtained from face-to-face interviews with ethnic minority households in Luc Yen district in Yen Bai province and use the multiple regression approach to identify the key determinants of household income and consumption.

The structure of this paper is organised as follows: Section 2 reviews previous studies on determinants of income and consumption of households in both Vietnam and international. Methodology, data, and variable description are discussed in Section 3 whilst results and discussions are presented in Section 4 and Section 5 concludes.

2. Literature review

There has been a number of studies examined determinants of household income or consumption or both (known as "Living Standards") in both international and Vietnam context. These are briefly reviewed as follows.

Escobal (2001) used the Living Standard Measurement Studies surveyed during 1985 and 1997 to examine the determinant of non-farm income diversification in rural areas of Peru. The dependent variable was the net income shares while the independent variables included input and output prices, value of fixed assets, and householder and household characteristics. The results showed that family size, householder education, householder experience, access to electricity, livestock, land size, distance to market, local market size and local land productivity had a significant impact on household income diversification. The significance level ranged from five to one per cent.

Balisacan, Pernia, and Estrada (2003) constructed a panel data set from Vietnam Living Standard Surveys during 1992-1993 and 1997-1998 to identify determinants of the welfare of the poor in Vietnam. The results showed that the householder age had a positive impact on

household income, significant at one per cent level. Female householder generated more income than their male counterparts, significant at one per cent level. Both the household size and number of dependants had a negative impact on household income and the significance level was at one and five per cent, respectively.

Nguyen, Linh, and Nguyen (2013) used data from the Urban Poverty Surveys conducted in Ha Noi and Ho Chi Minh cities in 2009 to examine the determinants of urban poverty in Vietnam. The dependent variable included the household income and consumption. The independent variables included the individual and household characteristics. The results showed that the number of dependants (only below 15 years of age), household size, motorbike ownership, per capita living area, householder age, householder education, householder occupation had a significant impact on household income or consumption or both income and consumption.

Khan (1993) used longitudinal data from the China Health and Nutrition Survey and OLS and quintile regression models to inspect the income determinants of household in rural areas of China. The data were extracted from four waves, 2000, 2004, 2006 and 2009. The results generated from both models showed that the impact of householder education, occupation, marital status, gender and age was statistically significant during the study period.

To the best of the authors' knowledge, there has not been any study to inspect the determinants of household income and consumption in ethnic minority households in the North West of Vietnam.

3. Methodology, data and variable selection

3.1. Methodology

The current study uses the following multiple regression model and the ordinary least square (OLS) approach to inspect the determinants of household income and consumption:

$$Y_i = \alpha + \beta_1 X_{1i} + \beta_2 X_{2i} + \varepsilon \quad (3.1)$$

where:

Y_i is the household income or consumption of the i^{th} household;

X_{1i} is a vector of the householder characteristics of the i^{th} household;

X_{2i} is a vector of the household characteristics of the i^{th} household.

Multiple regression analysis is more amenable to *ceteris paribu*s analysis because it allows researchers to explicitly control for many other factors that simultaneously affect the dependent variable. This is important both for testing economic theories and for evaluating policy effects when researchers must rely on non-experimental data. Since multiple regression models can accommodate many explanatory variables that may be correlated, researchers can hope to infer causality in cases where simple regression analysis would be misleading. Naturally, if more variables are added to the model that are useful for explaining y, then more of the variation in y can be explained. Thus, multiple regression analysis can be used to build better models for predicting the dependent variable. An additional advantage of multiple regression analysis is that it can incorporate fairly general functional form relationships. In the simple regression model, only one function of a single explanatory variable can appear in the equation, or in other words, the multiple regression model allows for much more flexibility (Wooldridge, 2012).

The most recognised advantage of OLS is that it is simple and straightforward. However, the OLS approach requires assumptions such as the Zero Conditional Mean and the Homoskedasticity. In addition, the results may be biased due to including irrelevant variables in the model or in contrast relevant variables are omitted from the model. Also, the multicollinearity issue should be considered (Baltagi, 2011; Verbeek, 2004). These challenges can be mitigated by testing the model with various approaches.

3.2. Data source and description

Data are collected in 2017 from face-to-face interviews with 90 ethnic minority households in three communes representing three geographical and economic zones in the district. These communes include Khanh Hoa (poor commune), Minh Tien (poor commune) and Yen Thang (non-poor commune). In each commune, 30 households are randomly selected from a list provided by the local authorities.

The data set contains a number of the householder and household characteristics. These characteristics are described in Table 1 below.

Table 1: *Descriptive Statistics of Selected Variables*

Variable	Mean	S. D.[a]	Min	Max
Householder age (years)	48.58	12.43	24.00	86.00
Householder gender (1=male, 0=otherwise)	N/A	N/A	N/A	N/A
Householder ethnicity (1="Kinh", 0=otherwise)	N/A	N/A	N/A	N/A
Householder education (schooling years)	6.99	2.77	2.00	12.00
Training participation of householder (1=yes, 0=otherwise)	N/A	N/A	N/A	N/A
Number of dependants (persons)	1.31	0.92	0.00	4.00
Household poverty status (1=poor, 0=otherwise)	N/A	N/A	N/A	N/A
Annual household income (VND millions)	80.44	41.50	4.80	240.00
Annual household expenditure (VND millions)	66.00	29.57	4.80	190.00
Cash in hand (VND millions)	14.50	15.52	0.00	80.00
Cultivation land size (hectares)	1.36	1.21	0.00	6.40
Number of livestock (heads)	1.02	1.04	0.00	4.00
Number of poultry (heads)	72.11	54.90	0.00	300.00
Value of working machinery & assets (VND millions)	4.70	6.42	0.00	26.00
Access to electricity (years)	18.19	2.75	10.00	23.00
Distance to nearest bank (km)	9.00	5.32	1.00	16.00
Distance to nearest market (km)	2.51	0.91	0.90	5.00
Distance to nearest concrete/tarred road (km)	0.15	0.27	0.01	1.20
Irrigated cultivation area (squared metres)	1,128.02	650.88	0.00	3,000.00
Sources of information (1=TV/radio/Internet, 0=otherwise)	N/A	N/A	N/A	N/A

Note. [a]*Standard Deviation*.

Source: Author's calculations from surveyed data.

On average, a householder is almost 49 years old and spends almost seven years in school. The number of dependents in a family is approximately one person. A household earns VND 80,440,000 per annum and spends 66,000,000 annually. A household has 1.36 hectares of cultivation land, approximately one livestock and 72 poultry heads. A family in the sample has had approximately 18 years access to electricity. The distance to the nearest bank, market and concrete/tarred road is 9, 2.51 and 0.15 kilometres, respectively.

The dependent variables include annual income and consumption, measured in VND millions. These variables are believed to be effected by a number of independent variables such as the householder age (measured in years). A household led by a younger or older or ethnic householder may not generate as much income as that led by a mid-age or a "Kinh" householder. Similarly a household led by a male (takes a value of one) householder may generate more income that that led by a female (takes a value of zero). A householder with a higher level of education (measured in schooling years) or participates (takes a value of one) in training courses is expected to lead the family to generate more income that a householder with a lower level of education or who does not participate (takes a value of zero) in any training courses. The number of dependents is believed to hinder the ability of generating income of the family. The larger cultivation land or the more livestock or poultry heads the more income the family can generate but also the higher level of spending. The more the family invests in working machines or assets the more income the family can generate. The shorter the distance (measured in kilometres) from the nearest bank or market or concrete or tarred road, the less expenditure the family has to spend, hence the more income it can generate. A family that has additional information sources (1=TV/radio/the Internet) is believed to be able to generate more income. Since data distribution of a number of variables are not normal, natural log form is applied where is applicable.

Table 2: *Determinants of Household Income*

Income (natural log)	Entire sample		Khanh Hoa		Minh Tien		Yen Thang	
	Coef.[a]	***p-value***	**Coef.**	***p-value***	**Coef.**	***p-value***	**Coef.**	***p-value***
Householder age (natural log)	-0.0535	0.0750	-0.0137	0.8590	0.1085	0.0810	0.0411	0.8130
Householder gender	-0.0125	0.3870	0.0419	0.3960	0.0136	0.4620	-0.0214	0.5390
Education of the householder (schooling years)	0.0027	0.2990	0.0124	0.0590	0.0068	0.5760	0.0061	0.4550
Training participation of the householder (1=yes, 0=otherwise)	0.0001	0.9950	0.0178	0.6820	-0.0030	0.8370	-0.0147	0.5750
Dependants	-0.0062	0.2980	-0.0642	0.0080	0.0119	0.5680	-0.0022	0.8400
Household poverty status (1=yes, 0=otherwise)	0.0168	0.5170	0.0479	0.4560	omitted	omitted	0.0857	0.2590
Annual household expenditure (natural log)	0.8273	0.0000	0.8996	0.0000	0.8977	0.0000	0.8390	0.0000
Cash in hand (natural log)	0.1787	0.0000	0.1575	0.0000	0.1492	0.0250	0.1898	0.0010
Cultivation land size (hectares)	0.0103	0.1110	0.0315	0.0640	-0.0060	0.7760	-0.0103	0.6680
Number of livestock heads (heads)	-0.0012	0.8590	-0.0187	0.3020	0.0236	0.2370	-0.0126	0.3450
Number of poultry heads (natural log)	0.0045	0.6390	-0.0162	0.5050	-0.0123	0.8120	0.0007	0.9800
Value of working machinery & assets (VND millions)	0.0002	0.8780	-0.0034	0.3620	-0.0024	0.3030	0.0014	0.5550
Access to electricity (years)	0.0008	0.7460	0.0013	0.8770	0.0026	0.6020	0.0034	0.7320
Distance to the nearest bank (km)	-0.0000	0.9980	-0.0082	0.3080	-0.0176	0.6660	-0.0382	0.3620
Distance to the nearest market (km)	-0.0161	0.0230	-0.0062	0.7590	-0.0229	0.3670	-0.0433	0.3440
Distance to the nearest concrete/tarred road (km)	-0.0271	0.2310	-0.1106	0.0380	-0.0974	0.8120	-0.0058	0.9560
Irrigated cultivation land size (natural log)	0.0003	0.9550	0.0643	0.3110	-0.0469	0.0830	0.0051	0.4830
Source of information (1=TV/radio/Internet, 0=otherwise)	-0.0125	0.6750	omitted	omitted	omitted	omitted	0.0082	0.8460
Constant	**0.5988**	**0.0000**	**-0.2235**	**0.6720**	**0.2866**	**0.2360**	**0.2353**	**0.5890**

Note. [a]*Coefficient.*

Source: Author's calculations from surveyed data.

4. Results and discussion

4.1. Determinants of household income

As expected, the impact of expenditure and cash on income is statistically significant (at one per cent). For example, a one per cent increase in expenditure and cash is associated with almost 83 and approximately 18 per cent increase in income, respectively. This trend is consistent among the communes when the sample is split into sub-samples. In contrast, an additional kilometre increase in the distance to the nearest bank is associated with almost two per cent decrease in

income, significant at five per cent. The impact of other variables on household income is not as expected. As addressed previously, the OLS approach with cross-sectional data may not be able to reflect all the impact.

Table 3: *Determinants of Household Expenditure*

Expenditure (natural log)	Entire sample		Khanh Hoa		Minh Tien		Yen Thang	
	Coef.[a]	*p-value*	Coef.	*p-value*	Coef.	*p-value*	Coef.	*p-value*
Householder age (natural log)	0.1166	0.0670	-0.0008	0.9960	-0.0401	0.8530	0.1829	0.1530
Householder gender (1=male, 0=otherwise)	0.0302	0.3710	0.0238	0.8050	-0.0026	0.9740	-0.0466	0.4550
Householder education (schooling years)	-0.0063	0.3120	-0.0191	0.0680	0.0057	0.7860	0.0130	0.3570
Householder training participation (1=yes, 0=otherwise)	0.0012	0.9680	-0.0897	0.3180	0.0190	0.7620	-0.0348	0.4760
Number of dependants (persons)	0.0180	0.2050	0.0330	0.2970	0.0023	0.9610	0.0356	0.1350
Household poverty status (1=yes, 0=otherwise)	-0.0277	0.6280	-0.0388	0.7640	0.0318	0.8370	-0.0441	0.7240
Annual income (natural log)	0.9001	0.0000	0.8128	0.0000	0.6942	0.0000	0.8953	0.0000
Cultivation land size (hectares)	0.0522	0.0010	0.0775	0.0050	0.0416	0.4040	0.0609	0.0850
Number of livestock heads (heads)	0.0106	0.5280	0.0253	0.4950	-0.0118	0.8510	0.0392	0.1720
Number of poultry heads (natural log)	0.0438	0.0390	0.0098	0.8120	0.1019	0.2570	0.0451	0.1650
Value of working machinery & assets (VND millions)	-0.0023	0.3810	-0.0018	0.7880	0.0011	0.9170	-0.0006	0.8960
Access to electricity (years)	-0.0039	0.5440	-0.0156	0.3550	-0.0008	0.9580	-0.0032	0.8380
Distance to nearest bank (km)	0.0054	0.0500	0.0181	0.2300	0.0091	0.8810	0.0425	0.4530
Distance to nearest market (km)	0.0321	0.0590	0.0369	0.3390	0.0035	0.9710	0.0172	0.8230
Distance to nearest concrete/tarred road (km)	-0.0176	0.7430	0.0727	0.4510	0.8433	0.3620	-0.1928	0.3410
Irrigated cultivation area (natural log)	0.0025	0.8440	0.1997	0.0610	0.1387	0.0940	-0.0112	0.4500
Source of information (1=TV/radio/Internet, 0=otherwise)	0.0181	0.8170	omitted	omitted	omitted	omitted	-0.0771	0.3940
Constant	-0.2273	0.4870	-0.3168	0.7660	0.0762	0.9410	-0.3880	0.4140

Note. [a]*Coefficient.*

Source: Author's calculations from surveyed data.

4.2. Determinants of household expenditure

As expected, the impact of income and land size on household expenditure is statistically significant (at one per cent). Particularly, a one per cent increase in household income or an additional increase in cultivation land size is associated with approximately 90 and five per cent increase in household expenditure. The longer the distance to the nearest bank or market the more the family has to spend. For example, an additional one kilometre increase in the distance to the nearest bank or market is associated with a half and approximately three per cent increase in household spending, significant at five and ten per cent, respectively.

The impact of other variables on household expenditure is not statistically significant.

5. Conclusion

The current study uses surveyed data from 90 households in three communes in Luc Yen district, Yen Bai province and the OLS method to examine determinants of household income and consumption of ethnic minority households. The results show that consumption and cash significantly (at one per cent level) drive household income. In addition, the impact of income and cultivation land size on household expenditure is significant at one per cent level. Further studies with panel data with longer timeframe should shed more light on the determinants of income and consumption.

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Thông tin tác giả:

1. Dương Hoài An
- Đơn vị công tác: Trường ĐH Nông Lâm Thái Nguyên
- Địa chỉ email: *duonghoaian@tuaf.edu.vn*

2. Đào Quang Dũng
- Đơn vị công tác: Phòng Tổ chức và Nội vụ - Huyện Lục Yên, tỉnh Yên Bái

3. Đỗ Xuân Luận
- Đơn vị công tác: Trường ĐH Nông Lâm Thái Nguyên

4. Trần Quốc Tuấn
- Đơn vị công tác: Phòng Kiểm tra và Thanh tra, tổ 4 thị trấn Lục Yên, huyện Lục Yên, tỉnh Yên Bái

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