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Income inequality by ethnic composition of rural households in Vietnam: Evidence from the Oaxaca-blinder decomposition

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Abstract: This study aims to determine the income gaps of rural households in Vietnam between 02 ethnic groups Kinh and other ethnic groups using the Oaxaca-Blinder (1973) decomposition method. The study is based on the Vietnam Rural Household Resource Access Survey (VARHS) from 2010 to 2018 to identify factors affecting the income gap between 02 Kinh ethnic groups and other ethnic groups. The results of the study show that there is a difference in income between the head of the household who is the Kinh ethnic group and other ethnic groups, the explanation of the Oaxaca-Blinder model shows that the difference in characteristics (age of the head of the household, education level, number of household members, area of productive land, etc) play an important role in explaining the income gap between 02 ethnic groups. The unexplained part reflects disparities due to factors other than characteristics such as discrimination or differences in access to economic opportunities.

Keywords: *Income decay, Income inequality, Rural households.*

1. Introduction

Income inequality between ethnic groups is a matter of concern in many countries, especially in developing countries, where ethnic minority groups often suffer from many disadvantages in terms of economic and social conditions. Previous studies have shown that the highest incidence of poverty is concentrated in households with ethnic minority heads of households, especially heads of households with low education levels (Tran Cong Kha, 2018). Income inequality is also referred to as the phenomenon of income being unevenly distributed among individuals or households in the economy. Today, income inequality has become a persistent and urgent problem that requires government intervention through appropriate policies (Dervis & Qureshi, 2016; Odusola, 2019) and it remains an obstacle to inclusive economic growth, social development and environmental sustainability (Todaro & Stephen, 2021; Gozgor & Ranjan, 2017).

Currently, the majority of ethnic groups live in rural areas and areas with difficult socio-economic conditions and their living capacity is mainly associated with traditional and backward agricultural production. Oxfam report (2017), in Vietnam, ethnic minority groups, small-scale farmers, etc… are most likely to be impoverished, have no access to services, and be discriminated against the most. Ethnic groups have significant differences in living standards, in which the Kinh and Hoa ethnic groups often have a much higher standard of living. Other ethnic groups have quite high poverty rates; They account for less than 15% of the population but up to 70% of poor households. In the period 2010-2014, 49% of Kinh and Hoa households in the lowest quintile moved to the higher income level, while only 19% of

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households from other ethnic groups moved up to the same level. Ethnic minority groups also tend to be more susceptible to downward shift in income than Kinh and Hoa groups.

In recent times, the Oaxaca-Blinder decomposition method has been widely used in economic research to analyze the causes of income disparities between different population groups such as income disparities by gender, region of residence, and ethnic composition (Firpo et al., 2018). This method separates the income disparity that can be explained by observable factors such as education and occupation and the rest due to unexplained factors such as discrimination or disparity in access to economic opportunity (Blinder, 1973; Oaxaca, 1973). That is why the author chose the topic *"Income inequality by ethnic composition of rural households in Vietnam: Evidence from the Oaxaca-Blinder* decomposition*"* to study.

2. Literature Review

The income gap between the Kinh ethnic group and other ethnic groups is also a matter of concern in recent surveys and research. Practice has shown that the disparity in income between the Kinh ethnic group and other ethnic groups will lead to many socio-economic problems that need to be solved at the macro policy level. Tran Cong Kha (2018) in analyzing the factors affecting poverty of 1,905 households in the Mekong Delta region showed that the highest incidence of poverty was concentrated in households with ethnic minority households, especially low-educated households.

Regarding the study on income disparity by ethnic factors in Vietnam, the study by Pham and Reilly (2009) analyzed the income disparity between labor groups by ethnicity in Vietnam. Pham and Reilly (2009) compared the income of the Kinh - Chinese ethnic group with the other ethnic group using data from the Household Living Standards Survey in Vietnam in 1993, 1998 and 2002 with information from workers aged 18 to 60. The results of the study show that there is indeed a difference in income between the group of workers of the Kinh - Hoa ethnic group and the group of workers of ethnic minorities of about 11%. Notably, the higher the income gap in labor groups with lower income segments.

The study by Vo Hong Duc et al. (2021) exploited data from the Population Living Standards Survey in the period 2004–2016 to analyze gender-related income disparities in Vietnam. The results of the analysis show that one of the reasons for the income gap between male and female workers is due to the ethnic difference of workers. In addition, research by Pham Duy Khanh et al. (2021) based on the 2018 Population Living Standards Survey Data of the General Statistics Office of Vietnam shows that the income gap for 7,558 workers belonging to Kinh ethnic groups and ethnic minorities in the Mekong Delta, ethnic minority workers only receive about 80% (or approximately 1 million VND/month lower) compared to the income of Kinh ethnic workers in the labor market.

3. Methods and Data

3.1. Data

This study uses the Vietnam Rural Household Resource Access Survey (VARHS) Dataset from 2010 to 2018. This survey is carried out in 12 provinces and every two years in the form of repeating the households surveyed from the previous period. The data from this survey allows the calculation of household income from different sources of income, household characteristics and household livelihood assets.

From this dataset, the study filtered out the data of households with income. At the same time, filter out the necessary variables for their research model. After filtering the data, the observations with no income and the observations with insufficient data are removed, and the data is used for the research model.

3.2. Methods

The research model on factors affecting the income of rural households in Vietnam is as follows:

$$Ln(Thunhap)_i = \beta_i + \beta_i Gioitinh_i + \beta_i TuoiCH_i + \beta_i (TuoiCH)_i^2 + \beta_i TDHV_i + \beta_i Dantoc_i + \beta_i Honnhan_i + \beta_i Sothanhvienho_i + \beta_i Hongheo_i + \beta_i TylePT_i + \beta_i Dientichdat_i + \beta_i Sovonvay_i +$$

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$$\beta_i Tieykiem_i + \beta_i KC\_duongnhua_i + \beta_i Socusoc_i + \beta_i Sodonvithamgia_i + \beta_i Chiphi\_tg_i + \beta_i Quanhe\_CQ_i + \beta_i Nhocay_i + \varepsilon_i \quad (1)$$

Table 1:
Statistical values describing variables.

Observed variables	Min.	Max.	Average	Standard deviation
Gender Head of Household	0	1	0.764378	0.424408
Age of Head of Household	19	70	55.57522	10.74256
Square the age of the head of the household	361	4900	3198.269	1151.486
Education	0	15	5.803184	4.245088
Ethnic	0	1	0.807164	0.394545
Marriage	0	1	0.784279	0.411342
Number of household members	1	14	4.16597	1.801724
Poor households	0	1	0.133433	0.340059
Dependency Rate	0	100	43.54769	29.73471
Production land area	0	210370	7692.722	13998.27
Loan amount	0	5000000	23058.7	106121.5
Thrifty	0	1	0.909552	0.286837
Distance from the house to the asphalt road	0	200	2.02405	6.799411
Number of shocks	0	3	0.542886	0.8389
Number of Participating Units	0	4	1.184279	0.460686
Cost of Participation	0	330000	112.7359	3588.006
Relations with the government	0	1	0.21592	0.41148
Rely on	0	1	0.053433	0.224906
Y: Average household income (1.000 VND/year)	104.0	27800.000	114.157	390.136
Sample size = 10,050				

The estimation coefficients from equation (1) will be used to calculate the income disparity and analyze the income disparity of Kinh and ethnic households according to the Oaxaca-Blinder (1973) method, specifically as follows:

According to Oaxaca-Blinder (1973), the income gap between the two groups is divided into 2 parts: (1) The first difference is called the explained difference, which is caused by the difference in the characteristics of workers expressed by independent variables in the model; (2) The second part of the difference is called the unexplained part, which is caused by the difference in the regression coefficient, which represents the difference in the enlightened policy between the labor groups. This unexplained disparity is seen as a manifestation of discrimination or inequality in income between groups of workers. This method is presented as follows:

Given the 2 groups A and B and the dependent variable Y and the variables explaining X as a normal regression model.

$$\overline{lny^A} - \overline{lny^B} = \left(\overline{X^A} - \overline{X^B}\right)\beta^A + (\beta^A - \beta^B)\overline{X^A} \quad (1)$$

In which, lny is the income of the household; X is the typical vector of the ith household; β is a multiplier vector. The bars on the X vectors represent the average value of the characteristics, and the bars on lny's represent the average value of the logarithm of the household income.

Equation (1), the difference in income between two groups of heads of household A and head of household B can be separated into two parts of the difference: the difference caused by the difference in independent variables summarized by the expression and the difference caused by the difference in the regression coefficient between the two groups, summarized by the expression ().$\left(\overline{X^A} - \overline{X^B}\right)\beta^A - \beta^B$

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4. Results and Discussion

4.1. Descriptive Statistics

Table 1 provides descriptive statistics of the variables in the research model, helping us to have an overview of the characteristics of households in rural areas of Vietnam such as: Gender of head of household is a variable with a value from 0 to 1, the average value is 0.764. This shows that the majority of heads of households are male (76.4%). Next is the age of the head of the household with an age distribution of 19 to 70, with a mean age of 55.57 and a standard deviation of 10.74. This shows that the head of the household is mainly middle-aged, but there is a diversity of ages. The dependency ratio has an average value of 43.55 with a standard deviation of 29.73, indicating a relatively high proportion of dependents compared to the total number of household members. The average annual income is 114,157 thousand VND (about 114 million VND/year) with a standard deviation of 390,136, showing a huge difference in income between households. The lowest value is 104 thousand VND and the highest is 27,800,000 VND, proving that there are some households with very low or very high incomes compared to the common ground.

Table 1 shows a multi-dimensional picture of households in rural Vietnam, from demographic, economic, social to income. Large disparities in variables such as the area of productive land, the amount of loans, and average income suggest economic inequality between households. Factors such as high dependency rates, poverty, and low levels of social participation can be factors that affect household income.

The regression results of the income function applied to the Oaxaca-Blinder equation will clearly show the difference in income between the head of the household who is the Kinh ethnic group and the head of the household who is another ethnic group. Table 2 presents the regression results for the income function of the 2 Kinh ethnic groups and other ethnic groups of the head of the household in order to give an overview of how the factors affect the income of the 2 Kinh ethnic groups and other ethnic groups of the head of the household.

Table 2.
OLS regression results for 2 samples of Kinh and other ethnic groups.

Variable	**Kinh**		**Other**	
Ln (income)	Coefficient	Std. err	Coefficient	Std. err.
Gender Head of Household	0.091***	0.027	-0.006	0.066
Age of Head of Household	0.013***	0.005	0.015*	0.009
Square the age of the head	0.000**	0.000	0.000	0.000
Education	0.035***	0.002	0.031***	0.004
Marriage	0.156***	0.029	-0.090	0.067
Number of household members	0.201***	0.005	0.086***	0.008
Poor households	-0.520***	0.030	-0.451***	0.031
Dependency Rate	-0.006***	0.000	-0.003***	0.001
Production land area	0.056***	0.007	0.081***	0.014
Loan amount	0.003*	0.002	0.003	0.003
Thrifty	0.417***	0.030	0.309***	0.047
Distance from the house to the asphalt road	-0.001	0.001	-0.004***	0.002
Number of shocks	-0.095***	0.011	-0.057***	0.015
Number of Participating Units	0.207***	0.018	0.055**	0.031
Cost of Participation	0.000	0.000	0.001***	0.000
Relations with the government	0.119***	0.020	0.102***	0.035
Rely on	0.142***	0.038	0.304***	0.059

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Constant	8.885***	0.169	9.100***	0.282

Note: *, **, ***: statistically significant at 10%, 5% and 1%

Table 2 shows that the gender of the head of the household who is the Kinh ethnic group has a positive effect on income, the head of the household is a man with a higher income than the head of the household is a woman, but this variable has no statistical significance for other ethnic groups. This shows that there is a difference in the role of gender in Kinh ethnic households compared to ethnic minority groups, possibly because men in Kinh ethnic households tend to take on a more dominant economic role than other ethnic groups.

The education level of the head of the household has a positive effect on income in both ethnic groups with a high level of significance. This shows that education is an important factor affecting household income regardless of ethnic group, especially for ethnic minority groups, where access to education is limited. For both ethnic groups, savings have a positive coefficient, which is of very high statistical significance, showing that savings is an important factor that can help households invest and develop production, thereby increasing income.

The variables of relationship with local government and reliance both have positive coefficients and high statistical significance for both ethnic groups, indicating that having a relationship with the government or being able to rely on others has a positive impact on income. This may be due to the fact that these households have easy access to resources or support when needed.

Table 3.
Oaxaca-Blinder decomposition results for income disparities by Kinh and other ethnicities.

Ln (thunhap)	**Coefficient**	**Std. err.**	**Confidence interval at 95%**	
Other ethnic groups	10.897***	0.017	10.864	10.930
Kinh ethnic group	11.228***	0.010	11.208	11.249
Difference	-0.331	0.020	-0.370	-0.292
[illegible]				
Gender Head of Household	0.001	0.011	-0.020	0.022
Age of Head of Household	-0.108***	0.064	-0.234	0.018
Square the age of the head	0.086	0.069	-0.048	0.220
Education	-0.067***	0.009	-0.085	-0.049
Marriage	-0.012	0.009	-0.029	0.006
Number of household members	0.110***	0.011	0.088	0.131
Poor households	-0.103***	0.009	-0.120	-0.086
Dependency Rate	0.025***	0.005	0.014	0.036
Production land area	0.092***	0.016	0.061	0.124
This amount of capital	0.001	0.001	-0.001	0.003
Thrifty	-0.005**	0.002	-0.010	0.000
Asphalt Spacing	-0.004**	0.002	-0.008	0.000
Number of shocks	-0.023***	0.006	-0.035	-0.011
Number of Participating Units	0.000	0.001	-0.002	0.001
Cost of Participation	-0.052*	0.028	-0.107	0.002
Government Relations	0.001	0.001	-0.001	0.003
Rely on	0.006***	0.002	0.002	0.010
Sum	-0.053	0.036	-0.124	0.018
Unexplained				
Gender Head of Household	-0.026	0.019	-0.063	0.011
Age of Head of Household	0.117	0.607	-1.073	1.306
Square the age of the head	-0.046	0.337	-0.707	0.615
Education	-0.028	0.028	-0.082	0.026
Marital	-0.186***	0.055	-0.295	-0.078
Number of household members	-0.452***	0.038	-0.526	-0.379

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Poor households	0.006	0.004	-0.001	0.014
Dependency Rate	0.113***	0.033	0.047	0.178
Production land area	0.199	0.122	-0.041	0.438
This amount of capital	0.001	0.012	-0.022	0.024
Thrifty	-0.098*	0.051	-0.199	0.002
Asphalt Spacing	-0.006	0.004	-0.014	0.002
Number of shocks	0.018**	0.008	0.001	0.034
Number of Participating Units	-0.180***	0.043	-0.264	-0.096
Cost of Participation	0.073**	0.030	0.014	0.132
Government Relations	-0.004	0.009	-0.021	0.013
Rely on	0.008**	0.003	0.001	0.015
Constant	0.215	0.329	-0.429	0.859
Sum	-0.278***	0.038	-0.353	-0.203

Note: *, **, ***: statistically significant at 10%, 5% and 1%

Table 3 presents the results of the breakdown of income differences between the two ethnic groups of Kinh and other ethnic groups, showing that the average income of the Kinh ethnic group is 11,228, while that of other ethnic groups is 10,897, resulting in an income difference of about 0.331. This shows that the Kinh ethnic group has a significantly higher average income than other ethnic groups. Continue to decompose the above difference into 2 parts: the explained and unexplained differences.

The explained difference accounted for 16% (0.053/0.331) of the income difference between the Kinh ethnic group and other ethnic groups of the head of the household. Specifically, if the head of the household is the Kinh ethnic group of the same age, the income of the head of the household who is the Kinh ethnic group tends to decrease compared to the head of the household of other ethnic groups is 108,000 VND, similarly, if the same household is poor, the income of the head of the household who is the Kinh ethnic group also tends to decrease to 103,000 VND,ect… This can explain that there may be some households who are Kinh ethnic but focus on occupations and fields that can generate lower incomes than other ethnic groups, or some Kinh ethnic households may have difficulties in accessing education or do not have the opportunity to learn and develop. There may also be social barriers or cultural regulations that may limit the Kinh people in accessing business and employment opportunities,...

With an inexplicable difference, we see that if the same marital status is married, the head of the household who is the Kinh ethnic group will have a lower income than the head of the household who is another ethnic group, which is 186,000 VND. Similarly, if the household size is the same, the head of the household who is the Kinh ethnic group also tends to reduce his income compared to the head of the household who is another ethnic group of 452,000 VND. On the other hand, if the same number of units participate in socio-political organizations, the head of the household who is another ethnic group will tend to increase his income compared to the head of the household who is the Kinh ethnic group of 180,000 VND. This can be explained that over the past time, our State has implemented many policies and programs such as livelihood and poverty reduction (allocation of forestry land, credit, subsidies,...), human resource development (tuition fee exemption, preventive medicine development and nutrition improvement, promotion of gender equality, etc encouraging ethnic leaders in the community and at all levels of government), cultural development (building village cultural houses, commercialization of traditional products,..), infrastructure development (building essential infrastructure including schools, health stations, roads, etc bridges, power grids, irrigation works, wholesale and retail markets, communication systems) and science and technology application (application of scientific technology, especially information and communication technology,..). These supports have resulted in a number of improvements in living standards in ethnic minority areas, notably in terms of: transport connectivity, access to public services (education and health), housing conditions and access to public utilities (electricity, clean water).

5. Conclusion and recommendations

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With VARHS data from 2010 to 2018, the study used the Oaxaca-Blinder (1973) decay method to analyze the income disparity of households according to 02 ethnic groups Kinh and other ethnic groups. The results of the study show that there is always an income gap between these two ethnic groups. This difference is separated from the explainable component. The explanation of the difference shows that there are differences in factors such as education level, household size, and production land area,... are the main causes of income disparity. The Kinh ethnic group has an advantage in these factors, helping them to have higher income levels, and the inexplicable income disparity can be seen as factors of discrimination or inequality of opportunity. This suggests that in addition to differences in characteristics, there are social barriers or economic structures that make it difficult for other peoples to access a fair income.

The income gap between Kinh ethnic groups and other ethnic groups is a complex and multi-dimensional problem. To reduce this disparity, it is necessary to apply the following basic solutions: (1) Education is an important factor to improve income and improve life. It is necessary to ensure that ethnic minorities have access to quality and equitable education. This includes building and improving educational infrastructure, training and recruiting teachers from ethnic minorities, and designing educational programs in accordance with the needs and cultures of ethnic minorities; (2) Ethnic minorities should be encouraged to participate in various economic sectors such as agriculture, industry, services, trade, and tourism. At the same time, it is necessary to provide financial support, vocational training and encourage start-ups to promote economic development in ethnic minority areas; (3) Investment in transport infrastructure, clean water, electricity, schools, hospitals and cultural facilities is very important. This helps to facilitate economic development and improve the quality of life of ethnic minorities, encouraging ethnic minority participation in decision-making and management of economic and social activities will help create more opportunities and fairness in the sharing of benefits and resources; (4) For ethnic minority households that have been participating in the labor market, it is necessary to focus on fostering and vocational training in the non-agricultural sector, including local services in order to create conditions for diversifying on-the-spot jobs instead of migrating to urban areas to work.

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