Dynamics of Poverty and the Development Gap Between Ethnic Majority and Minority in Vietnam

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Abstract

Vietnam, despite enjoying rapid economic growth for nearly three decades, exhibits evidence of increasing disparities across sections. The increasing concerns on whether the wealth is equally distributed among its diverse ethnic groups are examined in this study. By classifying "minority" into four finer categories, we found that two groups who are most closely assimilated with the majority, "*Tay-Thai-Muong-Nung*" and "*Khmer-Cham*", experienced moderate development, while the other two, "Highland" and "Northern Upland" minority, stagnated. The development gap, measured by log expenditure per capita, between ethnic majority and minority in Vietnam from 2004 to 2016 is further evaluated and decomposed by two approaches, Oaxaca-Blinder and Machado-Mata. During this period, the mean expenditure gap between the majority (*Kinh – Hoa*) and their counterpart significantly diverged by nearly 30%, despite other welfare outputs were converging. Expanding the analysis to the whole distribution, ethnic inequality was narrowed down among the richest, but greatly increased among the poor. The returns on characteristics become more important in explaining the gap at the bottom tails, while characteristics differences remain to be dominant reason in explaining the rich's welfare gap. This reversal in welfare disparities components raises important questions for policymakers concerning evolvement of disadvantages faced by minority, and the needs for new approaches from government to assist ethnic minority's poor.

I. Introduction

It has been 30 years since the economic reform "*Doi Moi*" initiated; Vietnam's three decades of continuing economic growth had benefited its citizens' wealth significantly. The outcome of the reform was translated into an unprecedented poverty reduction. The poverty headcount in Vietnam fell from nearly 60 percent in early 1990s to 37.4 percent in 1998 and to 20.7 percent in 2010 (World Bank, 2004; Badiani *et al.*, 2013). Vietnam also had

achieved the UN's Millennium Development Goal of Eradicate Extreme Poverty and Hunger by 1998. However, it raised the concern of "to which extent the poverty alleviation process goes". World Bank (2014) reported that the nation exhibits evidence of increasing disparities across sections. One of the major concerns is whether the wealth is equally distributed among the country's diverse ethnic groups. Development gap between majority and minority is a well-known issue around the world, where the problem is observed in both developing countries – India, Laos, Mexico, and China –

and developed countries – Australia, and United States. One might speculate that multiethnic Vietnam, with its successful pro-poor economic growth and quick poverty reduction (Glewwe & Dang, 2011; Nguyen & Pham, 2018), will be an exceptional case in which inequality between ethnic majority and minority is minor.

However, past studies show the contrary. Despite comprising just over one-eighth of population, the minority accounted for 40 percent of the poor in 2004 (World Bank, 2004). By 2012, minority group had constituted more than half of the nation's poor (Badiani *et al.*, 2013), and poverty among minorities got worse off overtime. In addition, the relative poverty reduction rate of the minority is much slower than that of the majority. From 1993 to 2006, the poverty headcount, that is, the percentage of population whose per capita expenditure are below the General Statistic Office - World Bank poverty line (GSO – WB), fell 81% for the majority (from 54% to 10%), while it is only 39% reduction for the minority (from 86% to 52%) (Baulch, 2007). Poverty, life expectancy, nutrition status and other living standard measures remain stagnantly low among minorities compare with that of *Kinh* and *Hoa* (Chinese) group in spite of numerous supportive policies were introduced to lift up those groups' quality of life (Swinkels and Turk, 2006; World Bank, 2009).

The issue of poverty in Vietnam indeed cannot be fully addressed without comprehensively analyzing the revolution of ethnic's poverty and their income growth in the last two decades, especially after the significant adjustment of the economy after Vietnam's accession into WTO in 2007. In this study, we seek to contribute to the current literature regarding poverty and inequality by examining the dynamical movement of ethnic inequality and minority's poverty in Vietnam in a detailed manner, paying attention to the revolution in ethnic's disparity among poorest groups. Up until now, to our knowledge, most of the literature analyze and compare results attain from Oaxaca-Blinder decomposition which is based on OLS regression. Due to the nature of OLS regression, the analysis limits at evaluating the welfare gap and its distributional factors at mean values; thus, it is not sufficient to draw conclusions on which and how important factors contribute to the consistent welfare gap between groups, especially among those who locate at two ends of income distribution. The characteristics of the poorest and the richest should not be similar, and the returns on their characteristics must also be drastically diverse. Therefore, rather than looking at a representative mean value, the understanding of the wealth differences would be more fruitful if the distribution is instead put into analysis. For this reason, in addition to OLS-based Oaxaca-Blinder decomposition, Machado-Mata decomposition approach which is based on quantile regression is utilized in this study. Quantile-regression-based-model is a particularly useful tool when analyzing the changes in the distribution is the main interest, because it allows researchers to evaluate the values at different points on the distribution. In addition, by the quantile regression virtue, the results are less sensitive when the conditions of linear regression are not met (i.e. heteroskedasticity, normality)– the situation which usually encountered when dealing with micro-data.

The rest of the paper starts by reviewing current literature regarding ethnic inequalities. After that, Section III discusses our empirical strategies in finer details. Section IV, first, presents results of investigating various welfare outcomes including income, expenditure, education, and labor market participation

to assess overall ethnics disparity and its developments over time. This is followed by a more detailed decomposition of the disparities, employing Machado-Mata approach on data from Vietnamese Living Standards Survey from 2004 to 2016. Finally, we conclude this paper in part V by summarizing our findings and discussing policy implication. By taking Vietnam as a case study, this paper aims to examine the determinants of the development gap, and help to identify challenges for policymakers under the new realm of globalization.

II. Literature Review

In Vietnam, available documents on the poverty reduction process within ethnic minorities conducted by Ministry of Labor, War Invalids, & Social Welfare are not sufficient and not up to date. On the other hand, reports from international agencies such as the World Bank or the Asian Development Bank are useful to understand the broad picture, however, are not representative for the whole nation because they were mostly focused in three provinces where the poverty rates of ethnic groups are highest (World Bank, 2009).

Not to mention, although there are detailed qualitative, anthropologically-focused studies on ethnic groups, researches regarding the development gap between ethnic majority and minority in Vietnam are very few. The limitation perhaps is due to the availability and reliability of Vietnam's microdata, along with the nation's relatively smaller economy size and similarities in economic model with its neighbor, China, where many research interests are concentrated. Fortunately, under the practice of Vietnamese General Statistical Office in association with the World Bank, the Living Standard Surveys are carried out biannually. The data is hence more ready to access and analyze.

One of the earliest quantitative papers that examine the ethnic gap in living standard is Haughton and Haughton (1997). Authors employed Vietnam Living Standard Survey(VLSS) dataset to highlight the significantly high possibility of minority children to be stunted. They showed the height-for-age Z-score of minority groups is 0.2 point lower than its counterpart. Despite the significant result, this paper does not control for geographical effects, hence the result might pick up the noise caused by the fact that the minority mostly reside in remote and mountainous areas.

The most significant studies which set foundation on investigating Vietnam's ethnic poverty gap are van de Walle and Gunewardena (2001) and extension research by Baulch *et al.* (2007) that examine the relative contribution of characteristics, the return to characteristics and geography to minority's income. Both of two papers use subsample of rural households in what they loosely define as "northern Vietnam" (van de Walle and Gunewardena, 2001). This subsample consists of Northern Region and Central Highland Region ethnic minorities. Using this sample, they regress the logarithmic expenditure per capita on a number of covariates which could be categorized into household demographic characteristics (household head ages, number of dependents, male/female ratio), educational level, and types of land areas cultivated by household. After achieving the estimations of returns on characteristics, they carried out Oaxaca-Blinder decomposition (Blinder, 1973; Oaxaca, 1973) to explain the difference in mean expenditure between two groups. Their results suggest that the return on characteristics (or discrimination effect as defined by Oaxaca-Blinder) has sizable effect to the difference in living standard between ethnic majority and minority. It indicates that

the minority group will gain a substantially less amount of income even if the distribution of these characteristics is made equal to the majority. In other words, policies that simply improve minority's education, or provide more land for production do not necessary reduce the development gap. They also found that the development gap between two groups is getting larger over years (Baulch *et al.*, 2007). The similar result is obtained in study of Litchfield and Justino (2004); they found that the ethnic minority are poorer than its counterpart, and the difference in poverty rate widened from 1993 to 1998. Nguyen *et al.* (2007) echoed this result in their study even though their focus was on disparity in income between urban and rural. They mentioned that there is penalty on income of households who are minority, and it gets larger after two periods.

Baulch *et al.* (2010) contributed to the literature using VLSS 1998 and 3 rounds of the Vietnam Household Living Standard Survey (VHLSS) 2002, 2004, and 2006. Besides the descriptive statistic, they presented the Oaxaca-Blinder decomposition result for the years of 1998, 2004 and 2006. They also introduced an extension approach developed by Machado and Mata (2005). This decomposition technique employs quintile regression which allows authors to evaluate changes at different levels of expenditure distribution rather than evaluate the decomposition at the mean value like Oaxaca-Blinder. Regardless of method and study year, their result supports what have been found before: The large amount of difference in expenditure is explained by the difference in returns of households' characteristics.

Nevertheless, previous studies employed VLSS and VHLSS up to 2006. Therefore, it might be outdated in current context, after the accession of Vietnam to WTO in 2007. Besides,

most studies utilized the decomposition techniques developed by Oaxaca-Blinder, which is based on ordinary least squared regression analysis. Under analysis' assumption, the gap can be further detailed into covariates' contributions, which provide great insights in explaining the causes of disparity. However, as discussed in Section I, the analysis results are not sufficient to draw conclusions on which and how important factors contribute to the consistent disparity between groups. Because our main interest lies on the development gap, the focus of the studies should concentrate on people at two ends of income distribution rather than the representative mean or median. This paper aims to fill this knowledge gap by developing an applied model based on most recent information from household surveys across various regions over time. It will help to assess the current situation of inequality between ethnic majority and minority, and explain the chronic poverty among the ethnic group.

III. Methodology

1. Data

This paper employs 7 rounds of Vietnamese Living Standard Survey which follow the globally recognized World Bank's Living Standard Measurement Survey. The survey is carried out biannually. It is national representative, and covers a wide range of topics including: household's demographics, health, nutrition, education, housing condition, employment, income, expenditure, ownership of durable goods, savings and credits. There are two versions of the survey: 36-page short version administered around 45,000 households each year while 43-page long version covered about 9,000 households. Because the longer survey provides more detailed information on

household's expenditure, long VHLSS from 2004 to 2016 will be weighted and used for analysis.

2. Empirical strategy

At the first step before analyzing the regression result, the descriptive statistics of various welfare indicators are presented in order to compare ethnic majority and minority. In Vietnam documents, "*Kinh*" (or the "*Việt*", or mainstream Vietnamese) and "*Hoa*" (Chinese) ethnic groups are referred as majority; while the rest 52 other groups are minority. In order to overcome the phenomenon in which the analytical results are trivialized by heterogeneity among minority and add depth to the analysis, until now referred "minority" group is further dissolved into four finer groups based on their similarities in livelihood rather than based on their culture similarities or the language group to which the ethnic groups belong. The 4 groups are: "*Tay-Thai-Muong-Nung*", "*Khmer-Cham*", Northern Upland and Central Highland. "*Tay-Thai-Muong-Nung*" are ethnic groups among the largest and relatively closely assimilated with the *Kinh*; they populate mainly in North to North East lowland mountains. "*Khmer-Cham*" are historically rooted from Cambodia; nowadays they are closely inhabited with *Kinh* people, mostly residing in Mekong delta which is the largest rice production area in Vietnam. Together with two mentioned groups, two composite categories for ethnic minority are those who traditionally reside in Northern Upland (including *Hmong, Dao* etc.) and Central Highland (*Ede, Ba Na, Co Ho,* etc.). The details of group member are provided in Appendix 1.

In the second step, in order to gain deeper insights on inequality situation, and to find out which factors influence the welfare difference between majority and minority, the development gap, measured by log per capita expenditure

from 2004 to 2016, is further evaluated and decomposed. The two decomposition approaches used in this paper are Oaxaca-Blinder (1973) and Machado-Mata (2005). The Oaxaca-Blinder decomposition (Oaxaca, 1973; Blinder, 1973) was introduced to explain the difference in wage of two groups of workers by decomposing the gap into two components: a portion that arise because two comparison groups have different endowment (years of schooling, experience, age etc.) when both groups receive the same treatment (explained component), and a portion that arise because one group is more favorably treated than the other group given the same endowment (unexplained or discrimination components). In this paper context, the empirical model is postulated by regressing a vector of socio-economic characteristics (including age of household head, the share of female household member, dependency burden, maximum education attainment, female population, whether household head is female, etc.), X_{ij}, on log of per capita expenditure of i-th household in the j-th ethnic group, lnE_{ij} (j = m or e designate majority and minority respectively):

$$lnE_{ij} = \alpha + X_{ij}\beta_j + \varepsilon_{ij}$$
$$i = 1, 2, 3, …, N,\ j = m\ or\ e$$

After regressing for each group and obtaining the parameters, the Oaxaca-Blinder decomposition is performed to get:

$$\overline{lnE_m} - \overline{lnE_e} = \widehat{\beta_m}(\overline{X_m} - \overline{X_e}) + \overline{X_e}(\widehat{\beta_m} - \widehat{\beta_e})$$

that separates the differences in per capita expenditure into the part that is due to different characteristics of the two ethnic groups (first term on the right), and another part that reflects the structural difference between them (or discrimination component). In the equation,

"bar" denotes mean value and "hat" denotes estimated value; subscript "m" denotes majority and "e" denotes minority; "β" is the parameter associated to the explanatory variables; $\bar{X}$ is average of explanatory variables.

As the main interest of this study lies at the difference of the whole population, especially at the lower tail of its expenditure distribution, in the next step, we employ the quantile-regression-based-decomposition approach developed by Machado-Mata (2005) to see if the difference persists. The model generates a counterfactual distribution of hypothesized wage distribution of majority, given the characteristics distribution (distribution of human resource, demography, dwells and production characteristics) of minority. The process involves a draw of random, with-replacement 100 observations from each majority and majority subsample. Then, the ranked observations will be comprised as percentiles of distribution, and their characteristics will be retrieved. The process will be replicated 500 times to create 500 observations at each θth quintile. Finally, the empirical quantile regression model with bootstrapping variance will be defined as:

$$Q_\theta\left(lnE_{ij} \mid X_{ij}\right) = X'_{ij}\beta_{\theta ij} \text{ for } \theta \in (0,1)$$ denotes θ^{th} quantile of distribution of log expenditure, given vector X of covariates.

The counterfactual distribution, denoted as $f(lnE_m \mid X_e)$, is thence used against the wage distribution of majority, denoted as $f(lnE_m \mid X_m)$, to decompose the total difference into characteristics difference and coefficient difference.

$$\Delta_\theta \{Q_\theta(lnE_m) - Q_\theta(lnE_e)\}$$
$$= \Delta\{f(lnE_m \mid X_m) - f(lnE_m \mid X_e)\} +$$
$$\Delta\{f(lnE_m \mid X_e) - f(lnE_m)\} + \text{residual}$$

The first and second terms on the right of the equation above are quantile homologous to conventional Oaxaca-Blinder decomposition. The approach decomposes the differences from two hypothesized distributions, hence the result will not be affected by the choice of reference group. Nevertheless, this approach, unfortunately, does not provide a detailed breakdown of each covariate's contribution. Hence, for robustness and adding insights to the analysis, both approaches (Oaxaca-Blinder and Machado-Mata) will be carried out.

IV. Result

1. Descriptive statistics

We present and compare different welfare outcomes – including income and expenditure, education, living and production conditions – by ethnic groups and years in Table 1, Table 2, Table 3 and Figure 1 to Figure 5. All money-related-values are deflated to 2010 value.

Table 1 presents the mean per capita income by group from 2004 to 2016.

Table 2 describes average education attainment of each ethnic groups from 2004 to 2016. The measurement value of this table is the school grade/level which this individual finished.

Table 3 shows ethnic groups' proportion of households who reside in rural area over the period from 2004 to 2016.

Figure 1 illustrates the kernel density of expenditure per capita for each ethnic group for the years 2004, 2010, and 2016. The GSO-WB poverty line is included in the figure for the ease of observing the dynamical development of expenditure distribution between groups.

Figure 2, Figure 3 and Figure 4 illustrate the proportion of households who have access to health insurance, national electrical network, and clean water.

Table 1: Per capita income by group (unit: thousand VND).

	Majority	ttmn	khmercham	northern	highland
2004	1,066.10	553.37	652.43	425.88	444.16
2006	1,243.20	637.67	700.95	478.13	449.18
2008	1,389.77	648.29	858.18	482.96	478.24
2010	1,778.45	936.85	1,220.24	722.92	1,069.93
2012	1,842.39	871.99	1,087.96	566.10	672.48
2014	2,012.66	1,007.47	1,269.43	639.31	673.12
2016	2,289.00	1,269.08	1,404.49	766.80	766.14

Table 2: Educational attainment by group (unit: years of schooling).

	Majority	ttmn	khmercham	northern	highland
2004	9.87	9.07	6.85	6.54	5.72
2006	10.03	9.34	6.67	6.85	6.38
2008	10.14	9.74	6.67	7.05	7.07
2010	10.19	9.63	8.35	7.72	9.06
2012	10.38	9.60	7.16	7.48	7.14
2014	10.60	9.84	6.94	7.44	7.28
2016	11.14	10.25	7.77	8.37	8.67

Table 3: Proportion of household resides in Rural area (unit: percentage).

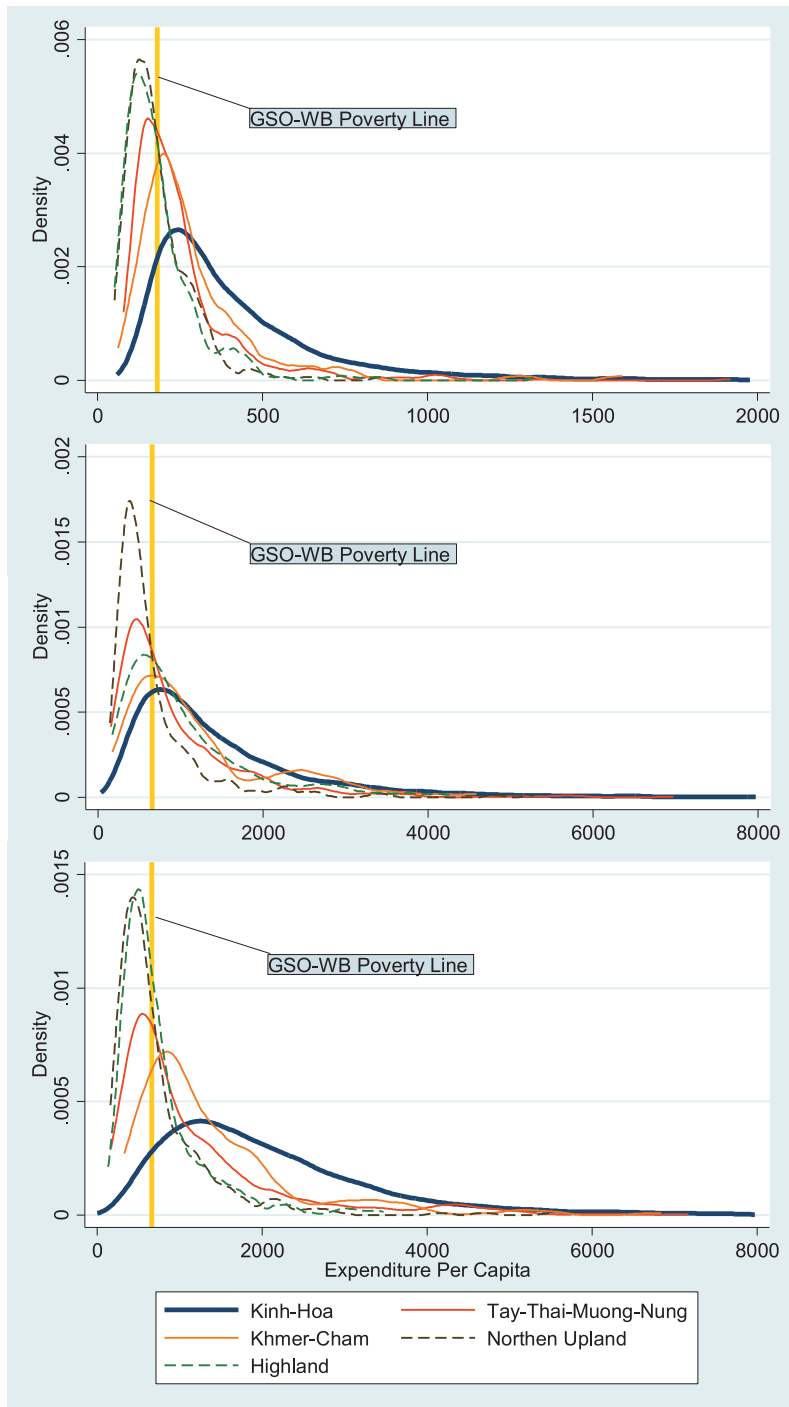|	Majority	ttmn	khmercham	northern	highland
2004	72.61	91.73	89.38	97.43	95.76
2006	70.00	92.27	90.32	98.35	90.74
2008	69.37	89.76	90.15	98.35	93.45
2010	67.61	85.80	80.50	86.81	70.54
2012	66.94	89.99	79.47	97.35	93.16
2014	62.69%	90.28%	82.78	96.76	90.69
2016	64.71%	89.08%	82.27	97.82	91.83

Figure 1: Kernel densities of expenditure per capita for 2004, 2010, and 2016.
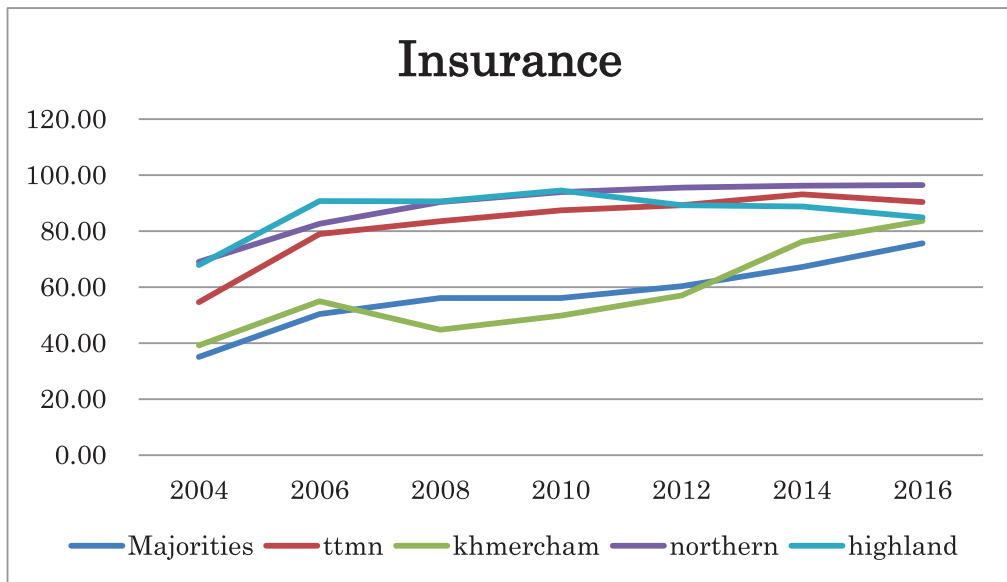
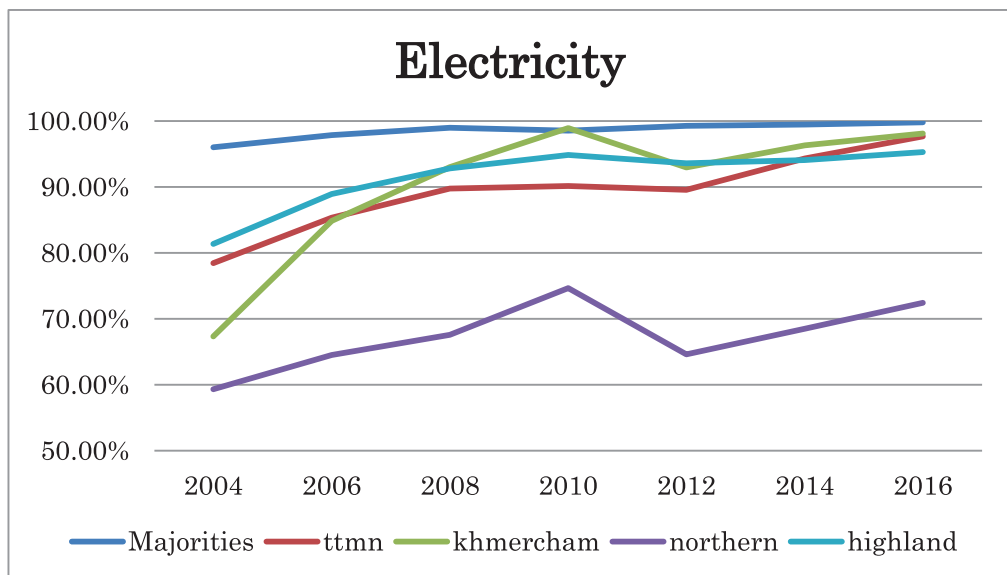**Figure 2: Proportion of people who have health insurance**

Figure 3: Proportion of households who have their main source of lighting from national electrical network.

Access to Clean Water
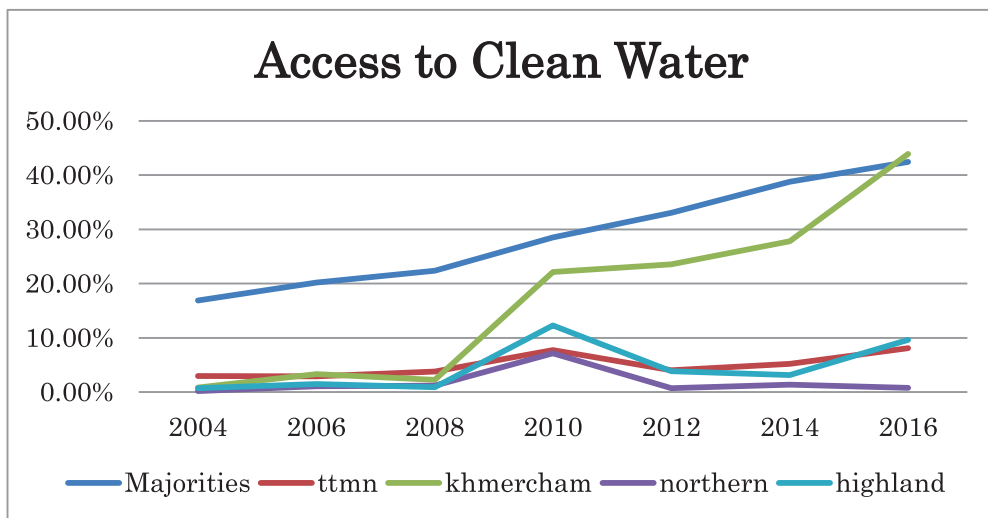
Figure 4: Proportion of households who live in house that have access to clean water.

Labor Forces

Figure 5: Percentage of labor employed in each sector.

Figure 5 presents the labor structure of each ethnic group over the period from 2004 to 2016.

We observe several interesting patterns.

First, ethnic majority (*Kinh–Hoa*) perform much better than minority on most of welfare measurement (except for insurance holding – Figure 2). Minority has lower income in absolute

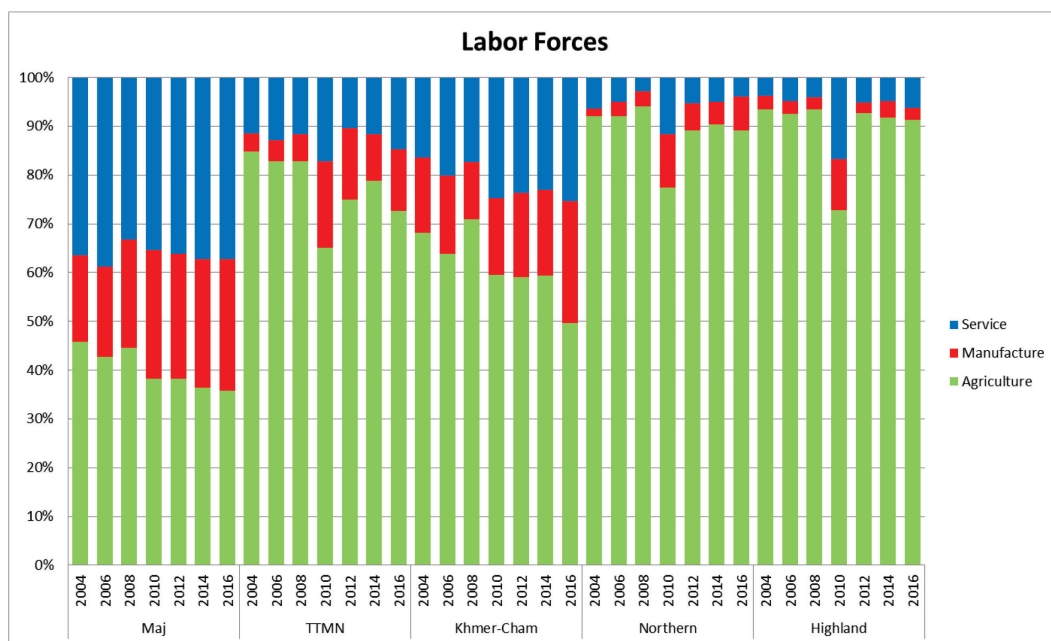terms, and lower growth rate in income and expenditure than its counterpart (Table 1, Figure 1). They have lower educational attainment (Table 2), tend to work in the agriculture sector (Figure 5), to reside in rural areas (Table 3), and have lower access to adequate living, production conditions (Figure 3 and Figure 4). Second, among minorities, Northern and Highland are the least well-off groups, coming after "*Tay-Thai-Muong-Nung*", who are in turn poorer than the *Khmer* and *Cham*. Another key thing to remember is that two groups who are most closely assimilated with the majority, "*Tay-Thai-Muong-Nung*" and "*Khmer-Cham*", experienced moderate development. Therefore, these two groups are showing signs of catching up with the majority. On the other hand, other two ethnic minority groups, Highland and Northern Upland minority, stagnated during this period. The sluggishness of the last two groups explains the widening gap between them and other ethnic groups.

2. Main results

2.1 Oaxaca-Blinder decomposition:

Table 4 reports the results from estimating Oaxaca-Blinder decomposition. The first column shows the absolute distance of welfare difference. Although observed some fluctuation, the disparity has widened over the last decade. After the accession to WTO, the gap narrowed down; this might be because of the change in labor structure and rural-urban labor mobility of minorities looking for new opportunities. This movement is reflected in household labor structure and urban rural residency of each ethnic group in Table 3 and Figure 5. After 2010, inequality again rapidly escalated; offsetting all the reduction in the expenditure gap in the last period. The raw disparity increased by nearly 30% from 0.499 (2010) to 0.645 (2016) due to

the abrupt diversion occurred during this time. This finding is broadly consistent with current literature, confirming the existence of widening ethnic inequality in Vietnam.

The decomposition estimate results with majority as the reference group are presented in the following columns. A large portion (about half in 2016) of ethnic gap attributes by returns to characteristics. The increasing importance of coefficients differences put encumbrance on conventional interpretation of "discrimination factor". It is problematic to conclude that the minority are getting more and more discriminated against, especially under recent circumstances in which labor mobility and the job market are greatly relaxed. In addition to unobserved factors such as quality of infrastructure, education, public service that are absorbed, the component is better interpreted as means at which people use their endowments to gain their living, or "production knowledge". This argument, along with the significance of the return on characteristics, expresses the role of government in not only increasing the quality of infrastructure, public services in regions where minority concentrate, but also harmonizing a smooth information transition across ethnic groups at specific localities.

Oaxaca-Blinder decomposition is also used to more finely disaggregate the differences in characteristics to find which factors contribute the most to the ethnic gap. The result achieved from the decomposition could be used as guidance for government and organizations, under the limit budget, to direct aids to factors that efficiently reduce inequality. The covariates are grouped into 4 broad groups including: dwelling characteristic, human capital characteristic, demography characteristic, and production characteristic. The estimates suggest that dwelling characteristic is the

Table 4: Oaxaca-Blinder decomposition results over years.

		2004	2006	2008	2010	2012	2014	2016
Total Differences		0.585 ***	0.600 ***	0.590 ***	0.499 ***	0.563 ***	0.686 ***	0.645 ***
		(0.02)	(.022)	(.022)	(　.022)	(.020)	(.021)	(.025)
Due to Difference in Characteristics		0.385 ***	0.312 ***	0.560 ***	0.274 ***	0.278 ***	0.396 ***	0.336 ***
		(0.04)	(.063)	(.025)	(.018)	(.06)	(.01)	(.025)
	of which							
	- Dwells	0.108 ***	0.176 ***	0.181 ***	0.087 ***	0.174 ***	0.199 ***	0.220 ***
		(.010)	(0.01)	(0.012)	(0.001)	(0.013)	(0.012)	(0.016)
	- Human Capital	0.068 *	-0.055	0.216 ***	0.058 ***	-0.025	0.071 ***	0.003
		(.041)	(0.061)	(0.021)	(0.011)	(0.062)	(0.001)	(0.015)
	- Demography	0.102 ***	0.102 ***	0.093 ***	0.029 ***	0.082 ***	0.075 ***	0.054 ***
		(.007)	(0.008)	(0.008)	(0.004)	(0.007)	(0.007)	(0.006)
	- Production	0.106 ***	0.089 ***	0.069 ***	0.098 ***	0.045 ***	0.050 ***	0.057 ***
		(.007)	(0.007)	(0.008)	(0.007)	(0.008)	(0.008)	(0.010)
Due to Difference in Coefficients		0.200 ***	0.288 ***	0.029 ***	0.224 ***	0.285 ***	0.290 ***	0.310 ***
		0.04	(0.064)	(.021)	(.021)	(.065)	(.021)	(.029)
*Standard errors are reported in parentheses. ***, **, * denotes statistical significant at 0.01, 0.05 and 0.1 level.*								

driven factor of endowment differentials. That is to say, leveling up access of minorities to infrastructure, such as electricity, clean water, better educational facilities etc., is an effective way to lift up minority' living standards. The next important factor is production characteristic. If minorities have access to modern employment opportunities, they can quickly catch up with the majority. However, it requires the minority to be equipped with necessary skills to successfully transition to modern labor structure, especially in the next ten years when the next wave of

minority's youths enter the job market. It, again, signifies the role of government in projecting future programs targeting those groups.

2.2 Machado-Mata decomposition

As the interest of this study lays at the difference of the whole population, especially at the lower tail of its expenditure distribution, in the next step, this study utilizes the quantile regression-based Machado-Mata (2005) decomposition to see if the differences persist. Figure 6 illustrates the results of this exercise for the period from 2004 to 2016. The numerical decomposition results are also provided in Table 5. The analysis administers some important evidence on the development gap and its dynamisms over years.

The results of the decomposition reveal an unpleasant truth, while the development gap at the top of distribution narrowed down, indicating the catching up of the best-off group minority to their counterpart, the equality of the bottom distribution deteriorated. Over the 14 years' interval, characteristics (or the endowment differences) remain to be the main factor explaining the welfare disparities of the rich. On the contrary, among poor people, this component became less important in explaining the ethnic gap, and got surpassed by coefficients differences in 2014. This transformation in structure, with the most ever-changing circumstances in the economy, suggests the government to alter their approaches in providing assistance to ethnic poor.

Going into details, at first, all of the total gap and the decomposition values are statistically significant, except for characteristics differences at 50th to 60th percentile of the year 2008. The total gaps, expressed by light purple "Predict gap" in the figure, are found to be not constant along the distribution. In addition, the structure of inequality observed some significant changes

over the period. Before 2010, the inequality increased as the percentile. In other words, the poor did not suffer welfare disparity as much as people at the top of the distribution. However, from 2010, two years after the accession of Vietnam to WTO, this structure reversed. The differences tend to decrease as we go up the distribution. Ethnic rich, who quickly responded to the changes, were able to close up the gap between them and their counterparts. Furthermore, the magnitude of reduction increases along the distribution; for instance, from 2004 to 2016, the gap decreases by 0.002 log point at 65th percentile, while at 95th percentile, the expenditure difference between two groups reduced by 0.19 log point. On the other hand, the poor, at the beginning of the globalization process, were not affected by the changing circumstances; hence, the differences in welfare of people at the bottom end remained unchanged. However, as the benefits of openness spilled over to other parts of distribution, the gap between the poorest greatly increased. At the bottom 20th percentile, the raw expenditure differences have increased about 0.2 log point over the last decade. By observing the dynamism of the change in inequality, we can reasonably draw a conclusion on who was the group that left behind the growing process, the minority poor. The contradict evolution at two ends of distribution explained the change in inequality structure over years. Despite the upper income group has observed an inequality reduction, especially when it signals the catching up process starts spreading to the middle class, the noteworthy escalation in inequality among people belonging to ethnic groups at the bottom of distribution is more worrisome.

Secondly, the decomposition procedure proposes some interesting results. The contribution of characteristics differences accounts for a
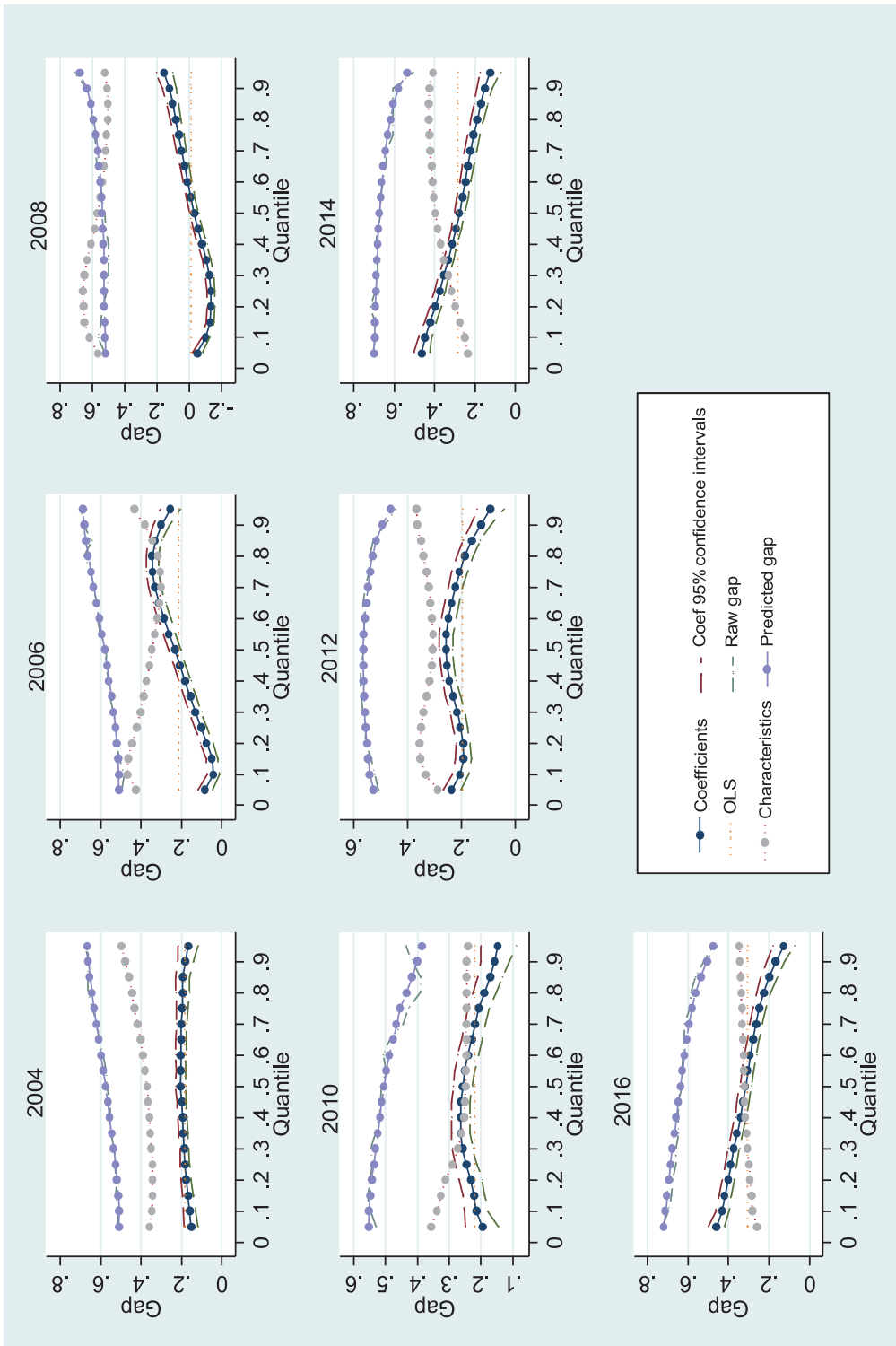
Figure 6: Machado-Mata decomposition results over years. Own calculation base on VHLSS 2004-2016

Table 5: Machado-Mata Decomposition

Percentile	5th	10th	15th	20th	25th	50th	75th	90th
2004								
Total Difference	0.510	0.508	0.512	0.520	0.526	0.576	0.631	0.660
Due to differences in characteristics	0.358	0.347	0.343	0.343	0.342	0.371	0.434	0.479
Due to differences in returns	0.153	0.161	0.169	0.177	0.184	0.205	0.197	0.181
2006								
Total Difference	0.510	0.510	0.513	0.519	0.526	0.580	0.647	0.680
Due to differences in characteristics	0.425	0.467	0.464	0.444	0.422	0.346	0.303	0.382
Due to differences in returns	0.085	0.043	0.049	0.075	0.104	0.234	0.344	0.299
2008								
Total Difference	0.520	0.521	0.523	0.526	0.527	0.540	0.579	0.635
Due to differences in characteristics	0.567	0.620	0.649	0.658	0.659	0.568	0.511	0.510
Due to differences in returns	-0.047	-0.099	-0.126	-0.132	-0.131	-0.028	0.067	0.125
2010								
Total Difference	0.553	0.552	0.549	0.544	0.536	0.505	0.454	0.401
Due to differences in characteristics	0.357	0.337	0.326	0.312	0.290	0.248	0.246	0.245
Due to differences in returns	0.196	0.215	0.223	0.232	0.246	0.257	0.207	0.156
2012								
Total Difference	0.527	0.541	0.547	0.552	0.556	0.566	0.539	0.495
Due to differences in characteristics	0.289	0.335	0.354	0.357	0.352	0.308	0.332	0.366
Due to differences in returns	0.238	0.205	0.193	0.195	0.205	0.258	0.207	0.129
2014								
Total Difference	0.702	0.698	0.695	0.692	0.689	0.673	0.633	0.580
Due to differences in characteristics	0.237	0.250	0.273	0.296	0.315	0.396	0.424	0.427
Due to differences in returns	0.465	0.448	0.422	0.397	0.374	0.277	0.208	0.154
2016								
Total Difference	0.720	0.711	0.703	0.694	0.686	0.637	0.580	0.508
Due to differences in characteristics	0.261	0.280	0.285	0.293	0.299	0.321	0.333	0.341
Due to differences in returns	0.460	0.431	0.417	0.401	0.387	0.315	0.248	0.167

relatively stable portion in ethnic gap among the upper median group, especially for the top 20th of the distribution, indicating an existence of fundamental disparities in capital endowment between two groups. Except for 2006, the coefficients component is not an important factor to explain for ethnic better-off group's disadvantages against the majority. This phenomenon might be due to this group's similarity in access to quality infrastructure, education, and information with the majority. In the light of the finding, the most efficient way to eliminate the inequality for this group would be increasing their endowment, by improving their education level, training schemes, or credits program.

On the contrary, people who are below the median, especially the group of our interest – the bottom 20th percentile – performed a dynamic evolution. Before 2012, similar to people at the top of distribution, differences in characteristics play a dominant role in explaining their ethnic inequality. However, starting from 2012, the importance of difference in coefficients (or the return of the characteristics) expanded. The coefficient difference surpassed the characteristics difference in 2014, and maintained to be the strongest factor explaining the development gap of ethnic poor (accounts for two thirds of the total gap in 2016). The dynamics in this group's contribution might be explained by the nature of their disadvantages. Despite the similarities with the richest group in the structure of contributions before 2012, the differences in characteristics must be understood differently. While the rich – who most likely lives in house with necessary facilities, graduate from high school or higher – being differed to their ethnic counterpart in means of production (capital, assets, production know-how), the poor being diverged from

other by the basic characteristics, such as primary education, access to clean water, national electricity grids etc. Hence, policies to support this group must be different to policies to people at the upper part of distribution. If characteristics differences are the major determinant of total disparities, one-targeting-all policies in order to narrow down the differences between to group – such as universal education policy, contraceptive education policy, and increase household access to electricity by subsidies on usage fee (Circular No. 190/2014 of Ministry of Finance) – is an efficient way to reduce the inequality. The result in descriptive statistics proved that this approach has successfully increased ethnic group living standards. However, new challenges arise as Vietnam's economic structure adjusted. The new demands and the convergences of characteristics lead to the change of contribution framework. Business know-how, quality of education, infrastructure became more important factors to explain the gap, signifying a need for a change in approach from the government to eliminate the inequality of the poorest, from a one-targeting-all policies to more tailored policy targeting different ethnic group in each region.

V. Conclusion

Ethnic inequality was examined in this study. It found that the disparities between majority and minority are increasing, especially among people at the bottom of the pyramid. The structure of inequality also exhibits adjustment under the new realm of globalization, proposing new challenges for the government in assisting the poor. Along with the findings, some policy suggestions have been discussed across the study. The economic growth, up until now, plays a dominant role in poverty reduction. It

generates funds, capitals for poverty alleviation programs such as Programme 135, phase I, II and III. However, the one-targeting-all programs have excluded some marginalized groups from the fruits of development, and evidently from this study, are ethnic poor. Therefore, the government, on one hand, should develop more tailored, trickle up programs, with smaller scale targeting regions where the ethnic poor concentrated to include people who left behind and lift them to catch up with other groups. Those programs need to be developed with understanding, and respect to ethnic culture, custom, production habits and target to their specific needs. Not to mention, the nature of the program should also change from "free" aids to conditional aids, which means receiving households / members have to take some certain responsibility to society. The conditional aids, not only help to direct the funds to the right person in need, but also create incentives for receivers to work, rather than solely rely upon free aids.

In addition, as production sector in which citizens are employed is another important factor, encouraging labor mobility, especially from agriculture to non-agriculture, rural-urban, is an effective approach to increase people welfare. In this regard, policies to support a smooth structure transition such as education quality enhancement, skills training, credits program and social safety net for migration should be initiated.

On other hand, as the determinant of poverty and inequality has been consistently explained by the dwell characteristics, the government should maintain their budget on enhancing public service, easing the access to electricity, water, communication, and expanding roads, bridges, and infrastructure systems.

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Appendix 1: Division of minority into subgroup for analyzing.

Group Name	Subgroup	Group Name	Subgroup
KINH	Majority	Ê-ĐÊ	Highland
HOA (HÁN)		BA-NA	
TÀY	ttmn	CƠ HO	
THÁI		GIẺ - TRIÊNG	
MƯỜNG		HRÊ	
NÙNG		MẠ	
KHƠ ME	khmercham	RA-GLAI	
CHĂM (CHÀM)		XƠ-ĐĂNG	
H' MÔNG (MÈO)	Northen	XTIÊNG	
DAO		MNÔNG	
SÁN DÌU		CHU - RU	
NGÁI		BRÂU	
SÁN CHAY (CAO LAN - SÁN CHỈ)		RƠ - MĂM	
KHÁNG		GIA-RAI	
XINH - MUN		BRU - VÂN KIÊU	
HÀ NHÌ		THỔ	
LÀO		CƠ TU	
LA HA		KHƠ MÚ	
LA CHÍ		CO	
PHÙ LÁ		TÀ - ÔI	
LA HỦ		CHƠ - RO	
LỰ		CHỨT	
LÔ LÔ		Ơ ĐU	
MẢNG		NƯỚC NGOÀI	
PÀ THẺN		KHÔNG XÁC ĐỊNH	
CƠ LAO			
CỐNG			
BỐ Y			
SI LA			
PU PÉO			
GIÁY			