



Pro-poor growth, poverty and inequality in rural Vietnam[☆]

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ABSTRACT

This study explores the effects of Vietnam's transition on the welfare of different ethnic groups in rural Vietnam. It draws on three rounds of national household surveys in 2002, 2004 and 2006. It is first observed that the pace of poverty reduction for minorities surpassed the majority over the period 2002–2006, although poor people were still concentrated in the minority groups throughout the period. Secondly, the disparity in living standards has been widening. In particular, inequality within both the majority and minority groups increased over the period. Thirdly, the study shows that the effect of economic growth on poverty is estimated to have been greater if inequality remained constant. It is also noted that the impacts of economic growth on poverty vary across different ethnic groups. Finally, regression decompositions of *within* inequality have confirmed that the main driver of inequality is not the same among ethnic groups. Given the diversity across different ethnic groups, we can conclude that government policy aimed at equal access to infrastructure and more equal distribution of assets, such as land, for ethnic minority groups would lead to more equal distribution of consumption and poverty reduction of those groups. Also, consideration of local needs would be necessary in designing and implementing public policies, given the heterogeneous socio-economic circumstances surrounding each ethnic minority group.

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1. Introduction

Vietnam is a multi-ethnic society that consists of 54 ethnic groups, of which Kinh Vietnamese accounts for 86% of national population. Kinh and Chinese (Hoa) are usually classified together as the ethnic majority and the remaining 52 smaller ethnic groups are referred to as the minorities. The minorities tend to inhabit less productive, geographically remote or mountainous areas with poor access to infrastructures or health and education facilities and to have lower living standards than the majority. Yet their geographic location explains only part of the disparities between the two groups (e.g. Baulch, Chuyen, Haughton, & Haughton, 2007; Baulch, Pham, & Reilly, 2008; Swinkels & Turk, 2006; Van de Walle & Gunewardena, 2001; World Bank, 2008).

Previous studies attempting to explain the welfare gap between the ethnic majority and minorities applied the Blinder–Oaxaca decomposition¹ which identifies the wage gap between the majority and the minorities in two parts: the first due to differences in socio-economic characteristics and the second part due to structural differences in the returns to these characteristics (Imai, Gaiha, & Kang, 2011a). Using the Vietnam Living Standard Survey (VLSS) in 1993, Van de Walle and

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¹ The methodology was first developed by Blinder (1973) and Oaxaca (1973).

Gunewardena (2001) show that there are systematic differences in characteristics and the returns to those characteristics, generally in favour of the majority group. Both Baulch et al. (2007) using VLSS1998 and Imai et al. (2011a) using the Vietnam Household Living Standards Survey (VHLSS) 2002 and 2004 show a similar result to Van de Walle and Gunewardena (2001), confirming that the structural component, in general, has become larger. However, none of these studies has explored how differently economic growth during the second phase of Vietnam's transition towards market economy influenced the poverty and inequality of different ethnic groups.²

Building on Baulch et al. (2007), this study attempts to address three main questions: (1) how the incidences of poverty and inequality have changed during the second phase of economic transition; (2) to what extent any changes in poverty by ethnic groups can be explained by variations in economic growth and inequality; and (3) what is the main driver of inequality within each ethnic group defined above. Several recently developed analytical tools will be employed to answer these questions. For the last question, the present study will take advantage of regression-based inequality decomposition analyses (e.g. Fields, 2003). To chart the changes over the period since 2002, the study draws upon data from three rounds of Vietnamese household surveys covering the transitional period from 2002 to 2006.

In Section 2 we briefly review the incidence of poverty and its changes in Vietnam. Section 3 summarises various statistics of annual poverty measures, inequality measures, pro-poor growth rates and poverty decomposition, which are disaggregated by ethnic groups. The data are also briefly described in this section. Section 4 quantifies the sources of inequality within each ethnic group. Section 5 offers concluding remarks.

2. Poverty in Vietnam

Vietnam has shown remarkable progress in poverty alleviation since the *Doi moi*, a series of economic reforms enacted in 1986. High economic growth over the last two decades was accompanied by sharp poverty reduction at the national level and this has made the country an early achiever of the first target in the UN's Millennium Development Goals (MDGs): halving extreme poverty and hunger. Vietnam has also made steady progress towards its own targets specifically tailored to its own needs—the Vietnam Development Goals (VDGs). The overall national poverty headcount ratio has, for example, plummeted from 58.1% in 1993 to 14.5% in 2008.^{3,4} Another commonly used indicator is the ratio of food poverty. This indicates the percentage of the population unable to purchase sufficient food to provide 2100 calories per capita per day. The estimates of food poverty also show a great improvement: the incidence of food poverty dropped from 24.9% in 1993 to 6.7% in 2006 (World Bank, 2008).⁵

However, in many dimensions progress in poverty reduction was uneven. For example, not only was urban and rural disparity still wide in 2006 – for overall poverty, 3.9% in urban vs. 20.4% in rural and for food poverty, 1.2% vs. 8.7% (World Bank, 2008) – regional variations in both overall and food poverty were also large. North West region showed 49.0% of overall poverty and 29.9% of food poverty ratio while only 5.8% and 2.3% of households in Southeast region were observed to be overall and food poor (Nguyen, 2009).

Such a large disparity in the incidence of poverty can be also found between the ethnic majority and minority groups. In spite of a notable achievement in poverty reduction for the ethnic minorities during 2002–2006, as we will see in detail in the next section, overall poverty was concentrated in the latter with the headcount ratio as high as 52.3% in 2006, much higher than that of the former at 10.3%.⁶ According to our data, 25% of the poor ethnic minorities whose consumption level was below the poverty threshold in more than one period were classified as chronically poor. Furthermore, Imai, Gaiha, and Kang (2011b) show that the probability of falling into poverty for the minority is much higher and remains well above that of the majority. One popular ex ante measure of poverty is vulnerability as expected poverty (VEP) and our estimates of VEP for the minority groups was 0.44, i.e. the minority groups, on average, have a 40% probability of falling into poverty in the future. This contrasts starkly with only a 4.2% probability for the majority group.

² For the sake of convenience, the nature of Vietnam's economic reforms might be divided into two periods, referred to in this study as the first and second phases of transition: 1993–1998 and 2002–2006 (Freeman, 2002; Klump, 2007; Martim, 2005). While the country has adopted a comprehensive reform package starting with the agricultural sector, the process of reform slowed during 1997–2000, especially after the Asian currency crisis. However, the country has regained a new momentum of economic reform since then and has taken major steps to strengthen the private sector, aimed at deeper international integration. These include the introduction of a new enterprise law and changes to foreign investment law; increased recognition of the role of the private sector; the signing and ratification of the bilateral trade agreement with the US; announcement of the intention to join the World Trade Organisation (WTO); the cautious opening of a long-awaited stock market etc. The focus on the period 2002–2006 is also deemed important. While Vietnam continued to enjoy high growth rates through the economic reforms, the progress of poverty reduction was highly uneven among different sections of society and there still existed the poorest of the poor, particularly among ethnic minorities.

³ Poverty rates used here are based on the international poverty line which was devised by the Vietnamese General Statistics Office (GSO) to reflect the cost of acquiring enough food for an intake of 2100 calories a day and the cost of purchasing basic non-food items. The basket of food and non-food items is determined by the consumption patterns of the third quintile of households in terms of per capita expenditure. The poverty lines were VND 1.16 million per person per year in 1993, VND 1.79 million in 1998, VND 1.92 million in 2002, VND 2.07 million in 2004 and 2.56 million in 2006.

⁴ Estimates of the overall poverty ratio from 1993 are cited from the World Bank (2008) whereas the estimate of 2008 is from the Statistical Handbook of Vietnam 2010 by the GSO.

⁵ Whether a household is food poor is defined as a comparison of the per capita household total expenditure on food items required for the 2100 calories intake. However, provided that a household spends its income on the purchase of food and non-food items, the food poverty ratio is likely to underestimate the proportion of households able to attain 2100 calories.

⁶ In fact, poverty reduction in ethnic minorities was almost constant during 1993–1998: The incidence of poverty in the ethnic majority declined from 58.1% in 1993 to 37.4% in 1998 while poverty ratio for ethnic minorities only fell from 86.4% to 75.2% (World Bank, 2008).

Table 1
Change in poverty head count ratio during 2002–2006.

Poverty head count ratio	2002	2004	2006 ^a	Annual % point change (2002–2006)
Vietnam	28.8	19.5	16.0	–3.2
Urban	6.5	3.6	3.9	–0.7
Rural	35.5	25.0	20.4	–3.8
Majority	29.0	17.8	13.5	–3.9
Minorities	72.1	62.7	54	–4.5
Khmer minority	56.5	41.3	34.6	–5.5
NU minority	69.6	61.0	50.9	–4.7
CH minority	87.0	76.1	71.5	–3.9
Other minority	87.4	77	69.3	–4.5

Source: Authors' calculation, based on VHLSS 2002, 2004 and 2006.

^a The estimates for 2006 were based on the poverty line, 2455 thousands VND, that deflated from 2004 poverty line using annual consumer price index (CPI) over the periods. These estimates are slightly lower than World Bank's unofficial poverty ratio for 2006. For example, national, urban and rural poverty rates were estimated at 16.0%, 3.9% and 20.4% respectively (see [Vietnam Development Report 2008](#)).

3. Growth, inequality and poverty

3.1. Data description

The present study makes use of three rounds of the household survey, VHLSS 2002, 2004 and 2006. The VHLSS was designed to collect detailed data on households and communities and was implemented by the Vietnam Government Statistical Office (GSO) under donor funding and technical support. These are multi-topic household surveys with nationally representative household samples. They commonly cover a wide range of issues, including household composition and characteristics (e.g. education and health); expenditure on food, non-food items, health and education; income by source (e.g. wage and salary, farm or non-farm production); employment and labour force participation; housing; ownership of assets and durable goods. The accompanying commune survey collects information on rural infrastructure and commune characteristics. The total sample size of VHLSS 2002, 2004 and 2006 are 30,000, 9300 and 9189 households respectively, with each having similar modules, including income and consumption expenditure data. Due to our focus on rural Vietnam, after controlling for missing observations, the size of the final sample becomes 22,621 for 2002, 6737 for 2004 and 5493 households in 2006.

3.2. Incidence of poverty between 2002 and 2006

Poverty head count ratio in Vietnam fell from 28.8% in 2002 to 16.0% in 2006 ([Table 1](#)). [Table 1](#) shows that the urban poverty rate has been stable at a low level, although it slightly increased in the most recent survey. In contrast, the rural sector has maintained a rapid pace of poverty reduction though the level of reduction has marginally slowed (e.g. 4.18 percentage points in the 1990s, [World Bank, 2004](#)), reporting a fall of 3.8% points per year in 2002–2006. In Vietnam, poverty is largely a rural phenomenon and approximately 13.7 million people were estimated to be poor in 2006.

One notable trend with regard to Vietnam's poverty can be observed in the ethnic minority data. The annual rate of decline in poverty during the 1990s for these groups was much lower than for their majority counterparts who were the major beneficiaries of economic growth in the initial stages of the transition. However, the pace of poverty reduction for the minority groups surpassed the latter over the period 2002–2006 (4.5% vs. 3.9% points per year). Although more than half of the ethnic minority population still lack the resources to satisfy the basic necessities of life, this recent rapid decline in poverty among minority groups might be partly explained by the government's National Targeted Programmes (NTPs). There were two notable NTPs, namely Programme 135 (P135) and the Hunger Eradication and Poverty Reduction programme (HEPR). P135, for commune-level investments, was established in 1998 with total government funds of over 9.142 billion Vietnam dong from 1998 to 2005. The aim of the programme was to assist poor communes technically and financially, especially in remote and mountainous areas, and to improve the living standards of ethnic minority people who lagged behind economic growth. HERP was established in 1996 to provide the poor (as defined by the Ministry of Labour, Invalids and Social Affairs (MOLISA)) with a number of areas of support including health care, education and credit.⁷ The overall coverage rates of such programmes are generally observed to be high though some components are not.⁸ For example, [Swinkels and Turk \(2006\)](#) show that 95% (60%) of ethnic minorities received a complete exemption from primary

⁷ The second phase of P135 as a five year programme (2006–2010) targets the poorest and most disadvantaged ethnic minority in 1644 poor and mountainous communes. It consists of four broad components: (1) market-oriented agricultural production; (2) community infrastructure; (3) capacity building and (4) improved socio-cultural livelihoods.

⁸ Once local governments select the target communes/villages, based on specific criteria such as population size, remoteness, poverty rate, basic infrastructure and other service delivery, commune representatives select the poor households. The decentralised and participatory manner of targeting seems to lead to a high coverage rate ([Klump, 2007](#)).

(lower secondary) school tuition fees; and exemption from school contributions – often the most expensive part of education – is much higher for ethnic minorities than for the ethnic majority in 2002. The provisions of education-fee exemption and health care programme are shown to have statistically significant effects on child school enrolment and the use of hospital facilities (Klump, 2007; Swinkels & Turk, 2006; Teerawichitchainan & Phillips, 2008). Drawing upon VHLSS 2002 and 2004, Nguyen (2009) finds that micro-credit provided by the Vietnam Bank of Social Policy (VBSP) also improved the living standards of its beneficiaries where the programme was found to have a positive impact on poverty and inequality reduction.⁹

Table 1 also provides poverty estimates for each of the four disaggregated ethnic minorities, namely, Khmer, Northern Upland (NU), Central Highlands (CH) minority and the 'other minority' category. The Khmer are the better-off group among these, recording not only the lowest incidence of poverty in each survey year (34.6% in 2006) but also the fastest rate of poverty decline, an annual 3.3% points drop, during the period of 2002–2006. The Khmer are ranked second after Thai Vietnamese, and are likely to have enjoyed better economic opportunities than minority groups living in more mountainous areas, since they inhabit the Mekong Delta and the South East coast.

3.3. Pro-poor growth

It is evident that the prominent driver of poverty reduction for both the majority and minorities in rural Vietnam has been long-run economic growth. The question arising is whether, and how much, the gains from economic growth were distributed in favour of the poor. This sub-section examines how economic growth has had different effects on the living standards of households according to their ethnicity. One way of investigating this is to provide a summary measure of the rates of pro-poor growth that takes account of the extent to which the poor benefited from the economic boom over a certain period. Ravallion and Chen (2003) define the "Growth Incidence Curve" (GIC) which shows how the growth rate for the p th percentile varies across population ranked by income (or consumption expenditure) and propose a rate of pro-poor growth as the mean growth rate of the poor's income.¹⁰

The GIC over the period 1–2 can be calculated as follows:

$$g_{1,2}(p) = \frac{y_2(p)}{y_1(p)} - 1 = \frac{\mu_2 L'_2(p)}{\mu_1 L'_1(p)} - 1 \quad (1)$$

where $y_t(p)$ is the income of the p th percentile at time t ; μ_t and $L_t(p)$ represent respectively mean income and the Lorenz curve that shows the cumulative proportion of the population and the cumulative proportion of income ($L'_t(p)$ is the slope of the Lorenz curve).

The rate of pro-poor growth is then defined as follows:

$$\text{pro-poor growth} = \frac{\int_0^{H_1} g_{1,2}(p) dp}{H_1} \quad (2)$$

where $H_1 (= F_1(z))$ is the headcount ratio of poverty at time 1.

Table 2 provides our estimates at the 10th, 20th and 30th percentiles and for the entire population, based on Ravallion and Chen's definition of pro-poor growth rate, drawing upon the VHLSS consumption expenditure data. The first three columns show the growth rates for Vietnam (both urban and rural) and for urban and rural areas. The growth rates for the majority and minorities are reported in the fourth and the fifth columns, followed by those for each minority group in the last four columns. Fig. 1 plots the annual consumption growth rate following the consumption expenditure percentile.¹¹

The comparison of the per capita expenditure growth rates of the poor groups, or the 10th, 20th, and 30th percentiles, and the population average implies the pattern of growth, i.e. whether growth has been pro-poor or not in a relative sense. The first column indicates that growth was not pro-poor as mean growth rate is higher at the population average than at the 10th, 20th, or 30th percentiles. The poorest group, or the 10th percentile, benefited least. This corresponds to the first graph in Fig. 1, which

⁹ Swinkels and Turk (2006) argue that the VBSP favours lending for ethnic minorities: only 4% of Kinh household took a loan from the bank as opposed to more than 10% of ethnic minorities. It is noted, however, that focusing on poverty targeting performance, Nguyen (2008) finds that the leakage rate in the provision of the VBSP credit is quite high.

¹⁰ There are a number of different definitions of pro-poor growth. See Kakwani, Khandker and Son (2004) for the summary of existing measures of pro-poor growth.

¹¹ The analysis of this sub-section draws upon consumption expenditure data. In addition, we have also carried out the same analyses by using the household income data disaggregated into four different components: wage income; farm income; non-farm income; and other income defined in VHLSSs (e.g. overseas and domestic remittances) to see which income sources were more 'pro-poor' in terms of their growth rates for different ethnic groups and their aggregate. We provide only a brief summary. First, we observe the 'pro-poor' growth pattern for the 'other income' category only for the aggregated sample. The pattern of 'pro-poor' growth in 'other income' is more clearly observed for ethnic minorities. Second, growth in farm income was highly 'pro-rich'. That is, the population up to the 30th percentile enjoyed economic growth rate of farm income less than 1%, while the average growth rate of farm income for the entire rural population was 7.19%. In fact, the 10th and 20th percentile groups recorded negative growth in this component. Third, the Khmer minority enjoyed highly 'pro-poor' growth from 'non-farm' and 'other income' components, while the CH minority experienced 'pro-poor' growth in 'wage' and 'other' income components. Overall, growth in overseas and domestic remittances was 'pro-poor', while remittances, as well as non-farm or wage income, contributed to poverty reduction for some ethnic minority groups. The results have to be interpreted cautiously as we have ignored the interdependence among sub-sectors. A full set of the results will be furnished on request.

Table 2
Rates of pro-poor growth in rural Vietnam during 2002–2006.

Percentile	Vietnam	Urban	Rural	Majority	Minorities	Khmer minority	Northern upland minority	Central highland minority	Other minority
10	4.10	3.65	3.75	5.09	2.25	6.43	1.85	1.64	3.78
20	4.79	4.53	4.42	5.71	3.19	6.06	2.74	4.32	3.16
30	5.23	4.86	4.90	6.04	3.68	5.40	3.19	5.61	3.30
Mean growth rate – entire population	6.19	4.22	6.38	6.99	5.10	4.85	5.07	6.40	6.05

Source: Authors' calculation, based on VHLSS 2002, 2004 and 2006.

shows that those between the 30th and the 80th percentiles benefited from growth above 6%. That is, the economic growth during the transition to a market economy was relatively not pro-poor. Rural–urban decomposition in Table 2 shows that the pattern of 'non pro-poor growth' resulted from the growth pattern in rural areas, as the growth was pro-poor in urban areas. A further decomposition into majority and minorities of rural households in Table 2 suggests that the growth was not pro-poor in either of these groups. In particular, for minorities, the growth rate is higher for the higher percentiles.

The last column of Table 2 presents the disaggregated results for each minority group. While the poor groups (the 10th, 20th, or 30th percentiles) benefited from high economic growth regardless of their ethnic category in the absolute sense, as suggested by positive growth rates of these percentiles for all the sub-groups, the pattern differs considerably across different groups. Economic growth was relatively pro-poor for the Khmer minority. GIC in Fig. 1 shows that the poorest 20% of the population recorded a higher than average growth rate, whilst a peak is observed above the 80th percentile.

On the other hand, as we saw in the previous section, 'CH minority' is the poorest group (in terms of head count ratio), to be followed by 'Other Minority'. Around 70% of households in both groups were still poor in 2006. However, the patterns of growth in consumption expenditure of the two groups are quite distinct. For example, the relatively poor households in the range of 20th to 40th percentiles in the CH minority benefited most during the second phase of Vietnam's transition (see Fig. 1), while the lowest annual growth in per capita expenditure was 1.64% at the poorest 10th percentile of the CH minority as shown in Table 2. That is, the poorest group in the CH minority benefited least from economic growth, while the moderately poor, but not the poorest, benefited most. On the other hand, the NU minority or other ethnic minority experienced highly unequal consumption growth, where the pattern of growth was relatively pro-rich. The fact that the speed of poverty reduction of the latter exceeds the former might imply that the higher percentile groups among the poorer in the NU minority or other ethnic group were just below the poverty threshold and had been able to escape from poverty relatively easily.

3.4. Change in inequality

In this section we examine how the growth process in 2002–2006 affected the level of inequality. We estimate the Gini coefficient and the Generalised Entropy (GE) measure, both of which have been widely used in the literature.

The Gini coefficient is derived from the Lorenz curve, a cumulative frequency curve that compares the distribution of a resource (here, per capita consumption expenditure) with the uniform distribution representing equality. It ranges from 0 to 1, representing perfect inequality with 1 (i.e. one member in a society holds all of the resource) and no inequality with 0 (all members shares same level of the resource).

The Gini coefficient can be formally defined as follows:

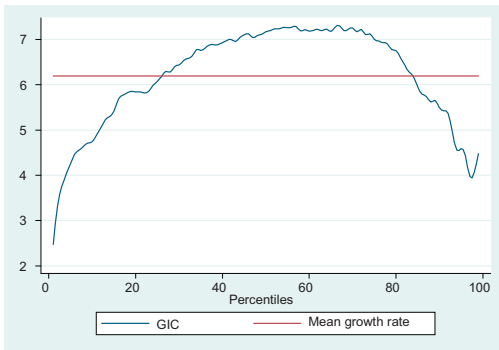
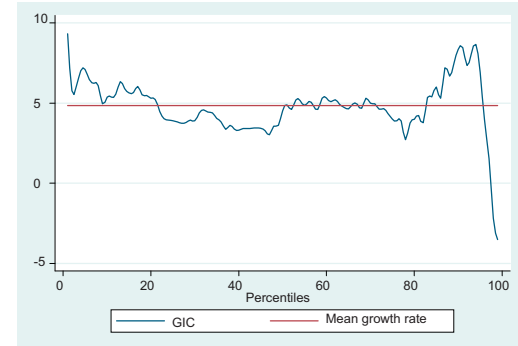
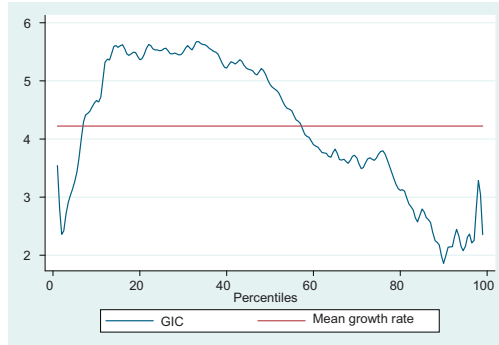
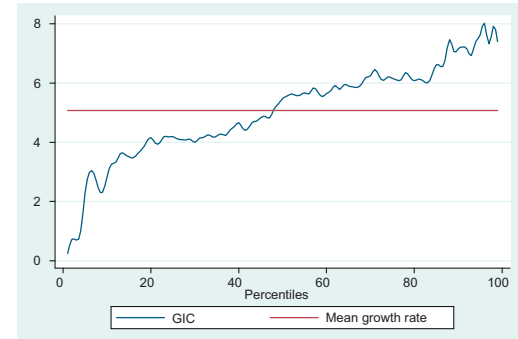
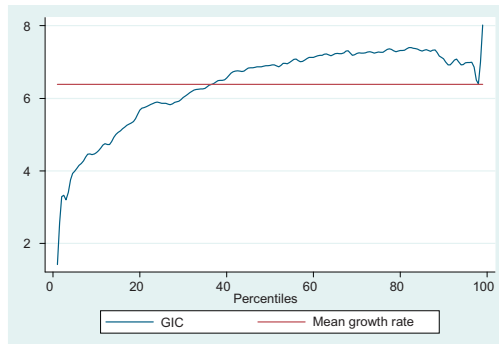
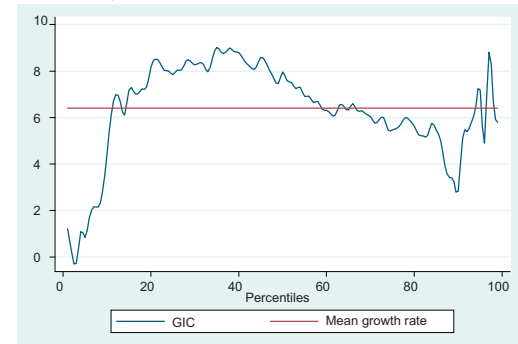
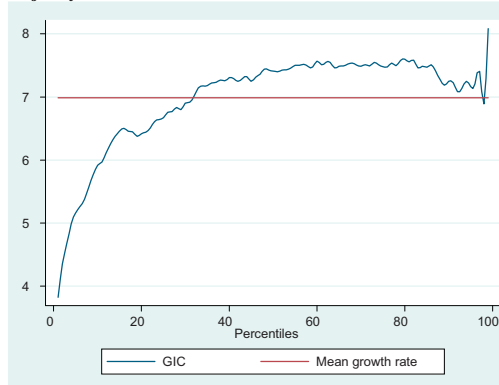
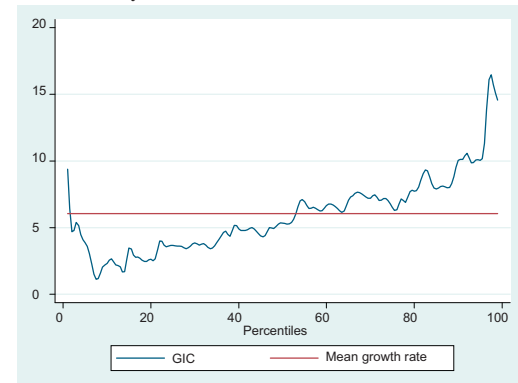
$$\text{Gini} = \frac{1}{2N^2\bar{y}} \sum_{i=1}^N \sum_{j=1}^N |y_i - y_j| \quad (3)$$

where $\bar{y}$ is mean income (or consumption expenditure) and $|y_i - y_j|$ is all the pair-wise absolute differences in income. N denotes the number of population.

The Gini coefficient is a full information measure drawing up all parts of distribution and the most widely used inequality measure in the literature. It allows comparison in the distribution of a variable of interest across different populations. It can also be used for comparison of distribution over time—whether inequality increases or decreases. However, it has a shortcoming in that it often fails to meet decomposability (i.e. the sum of the Gini coefficients of population sub-groups is not equal to the total Gini coefficient of the population), one of five axioms for a desirable measure of inequality.¹²

To supplement this shortcoming, we also compute the GE measure, which satisfies all five axioms. Furthermore, it is expected to provide better information for the present study as the measure allows us to look at, to some extent, whether inequality change took place in favour of poor populations during 2002–2006. This cannot be examined by using the Gini coefficient.

¹² To be a good measure, a measure of inequality is often required to meet the following axioms: the Pigou-Dalton Transfer Principle; Income Scale Independence; Principle of Population; Anonymity; and Decomposability. See Litchfield (1999) for the excellent summary of inequality measure.

Vietnam**Khmer minority****Urban****NU minority****Rural****CH minority****Majority****Other minority**

Source: VHLSS 2002, 2004 and 2006

Note: GIC shows how the growth rate for the p^{th} varies across population over a period of time (See Section 3.3)

Fig. 1. Growth incidence curve (GIC) in 2002–2006.

Table 3
Inequality measures in rural Vietnam during 2002–2006.

	2002	2004	2006	2002–2006 (% change)
Gini coefficient	0.281	0.295	0.302	7.5
GE(0) – Theil's <i>L</i>	0.128	0.143	0.151	18.0
GE(1) – Theil's <i>T</i>	0.136	0.15	0.157	15.4
Within ethnic majority/minorities				
Gini within majority	0.268	0.277	0.284	6.0
Gini within minorities	0.255	0.282	0.276	8.2
GE(0) within majority	0.115	0.125	0.131	13.9
GE(0) within minorities	0.105	0.128	0.124	18.1

Source: Authors' calculation, based on VHLSS 2002, 2004 and 2006.

The GE measure is defined as¹³:

$$GE(\theta) = \frac{1}{\theta(\theta-1)} \left[\frac{1}{N} \sum_{i=1}^N \left(\frac{y_i}{\bar{y}} \right)^\theta - 1 \right] \quad (4)$$

where θ is a discretionary parameter that represents the weight given to distances between incomes at different parts of the income distribution, and can take any real value.

The value of GE measure ranges from zero to infinity, representing higher inequality with higher value. It is more sensitive to changes at the lower (upper) tail of the distribution (i.e. the poorest) for lower (higher) values of θ , and is equally sensitive to changes across the distribution for θ equal to 1.

With $\theta = 0$, we obtain Theil's *L* index, often referred to as the mean log deviation:

$$GE(0) = \frac{1}{N} \sum_{i=1}^N \log \frac{\bar{y}}{y_i} \quad (5)$$

With $\theta = 1$, we obtain Theil's *T* index:

$$GE(1) = \frac{1}{N} \sum_{i=1}^N \frac{y_i}{\bar{y}} \log \frac{y_i}{\bar{y}} \quad (6)$$

From Table 3, we can see that, using both measures, there was a moderate increase in inequality in per capita consumption expenditure in rural Vietnam between 2002 and 2006.

In particular, the higher rate of increase given by GE(0) than GE(1) (18.0% vs. 15.4%) implies that the distribution of consumption expenditure per capita became more unfavourable at the lower part of the distribution (i.e. for the poor). Furthermore, in contrast to the majority group, where the change in inequality is moderate though the level of inequality is high, the inequality within the ethnic minorities increased during 2002 and 2006.

As noted above, one reason for the recent decline in poverty ratio of minority groups could be their progressive integration into the new economic system. We might interpret the relative worsening of 'within' inequality in ethnic minorities as a consequence of different socio-economic behaviours of different ethnic origins. Among 52 minorities, certain groups still retain their own culture, economic behaviour and language whereas other groups are relatively homogeneous and assimilated with the Kinh majority, including the Chinese Vietnamese. It is thus possible that, by following the majority group, already incorporated into the new economic system in earlier stages of the transition, the latter enjoyed better economic opportunities to enable them to benefit from the transition process than did the former. The arguments put forward by Baulch et al. (2007) follow this line—that “There are, therefore, at least two paths to prosperity for the ethnic minorities. One path is to assimilate, both economically and culturally, with the majority group. . . A second path, pursued by such groups as the Khmer and Thai, is to integrate economically with the Kinh while retaining their own group's cultural identity.” (Baulch et al., 2007, p. 1174)

3.5. Decomposition of changes in poverty

The change of poverty can be decomposed into two effects: one resulting from the change in mean income or consumption expenditure (found by isolating the change while holding the distribution of wealth among the population constant); and a distribution effect (found by holding mean income constant). For example, it is possible that poverty could decline without any economic growth in a given period, so long as redistribution took place towards the poor. Hence, we now investigate the relative contributions of growth and the redistribution components to the poverty changes. This provides useful insights for understanding the impact of economic growth in rural Vietnam and its effect on the poor.

There are several frameworks that offer a means of decomposing changes in poverty into growth and redistribution components. Datt and Ravallion (1992) devised a method with the initial period as a reference anchor point which

¹³ We use the formula of the GE measure given by Litchfield (1999).

decomposes the change of poverty into growth, redistribution and residual components. This would naturally prompt questions on the interpretation of the residual term, being the difference between the growth (redistribution) components evaluated at the terminal and initial Lorenz curves (mean incomes) respectively. Another limitation is the asymmetric treatment of the initial and terminal periods by using a benchmark period.

To overcome these limitations, [Kakwani \(2000\)](#) developed an alternative formulation using an axiomatic approach in which the residual term is averaged between the other components. Another alternative is a Shapley-valued based decomposition, proposed by [Shorrocks \(1999\)](#). Although these alternative methods adopt different terminologies in decomposing poverty change into the effects of growth and redistribution components, they produce essentially the same results, and suggest the exact decomposition and symmetry factors. The idea underlying all of these alternatives is computing the effect of each component by taking an average of the corresponding components based on the initial and the terminal year ([Duclos & Araar, 2006](#)). Formally:

$$\begin{aligned}\Delta P &= P_1 - P_0 = G + D \\ G &= \frac{1}{2} \left[P\left(\frac{z}{\mu_1}, L_0\right) - P\left(\frac{z}{\mu_0}, L_0\right) \right] + \frac{1}{2} \left[P\left(\frac{z}{\mu_1}, L_1\right) - P\left(\frac{z}{\mu_0}, L_1\right) \right] \\ D &= \frac{1}{2} \left[P\left(\frac{z}{\mu_0}, L_1\right) - P\left(\frac{z}{\mu_0}, L_0\right) \right] + \frac{1}{2} \left[P\left(\frac{z}{\mu_1}, L_1\right) - P\left(\frac{z}{\mu_1}, L_0\right) \right]\end{aligned}\quad (7)$$

where G and D represent the growth and redistribution effects respectively; z is the poverty line; μ_t is the mean income at period t ; L_t is the Lorenz curve representing the structure of relative income inequalities at each period.¹⁴

Our decomposition of poverty changes is reported in [Table 4](#) and illustrated in [Fig. 2](#).¹⁵ It is clear that poverty reduction in Vietnam has largely been determined by increases in consumption expenditure as a proxy of household welfare.

The positive sign on the redistribution component indicates a negative impact on poverty reduction due to worsened inequality. Hence, national poverty would have declined further as a result of economic growth if inequality had not changed—i.e. a realised decline of -0.119 versus a potential of -0.123 (as given by the growth component during 2002–2006). Rural–urban decomposition shows the same pattern, that is, poverty reduction was solely as a result of growth, not redistribution. Redistribution effect was poverty increasing in both urban and rural areas. Reduction of poverty head count ratio in terms of percentage was smaller in urban areas because the ratio in 2002 was as low as 6.5% (see [Table 1](#)).

While the redistribution component continued to offset the growth impact in each period for the ethnic majority, the redistribution reduced poverty for minorities in the second phase of economic transition. For example, poverty reduction within minority groups driven by redistribution in 2004–2006 was reasonably large (-0.017). At disaggregated level, the decomposition results for the Khmer minority shows that the group benefited from an exceptionally high economic growth effect on poverty reduction during 2002–2004, but suffered from an offsetting substantial inequality. The realised poverty decline was 0.153, while a potential decline of 0.237 would have been achieved only by growth with income distribution unchanged. However, during the 2004–2006 periods, a relatively large contribution from the redistribution effect was observed. These results suggest that the decline in poverty in the same period resulted predominantly from the change in distribution. For the NU minority, the contribution of redistribution supplemented the impact of growth on poverty reduction.¹⁶ On the other hand, the pattern observed from the CH minority is opposite to that of Khmer. While the redistribution component was negative and thus reduced poverty in 2002–2004, it became positive in 2004–2006 to offset a part of the poverty-reducing effect of growth.

We have seen not only how poverty and inequality have evolved over the period 2002–2006, but also how growth and redistribution affected poverty in each ethnic group. In particular, the summary measures of inequality decomposition suggest that inequality is dominated by ‘within group’ inequality. The next section will be devoted to the regression based decomposition of inequality within each ethnic group to shed some empirical light on the main factors underlying ‘within group’ inequality.

4. Regression based decomposition of inequality

We have observed that the nature of economic growth is diverse across different ethnic minority groups—the growth was either pro-poor or pro-rich for different groups. It has also been observed that the redistribution component has a different effect on each of five ethnic groups. These summary measures might reflect different socio-economic characteristics of each

¹⁴ The poverty measure is homogenous of degree zero in μ_t , and z , meaning that poverty will remain unchanged if both indicators change by the same portion. If an expected function of the Lorenz curve is chosen from either Beta or General Quadratic (GQ) forms, one can calculate the poverty measures (the head count index, the poverty gap index, and the squared poverty gap index) using the formulae in [Datt \(1998\)](#). See [Datt \(1998\)](#) for more details of computational tools for poverty measure.

¹⁵ For poverty decomposition, the present study uses Distributive Analysis Stata Package (DASP). See [Araar and Duclos \(2007\)](#).

¹⁶ Note that the negative redistribution component here for the NU minority does not mean that the redistribution was in favour of all the poor. It simply means that a part of the poverty reduction was due to redistribution. As we have seen, economic growth of the NU minority was pro-rich during 2002–2006 in a relative sense. If we consider this, it is more reasonable to interpret the result of the redistribution component in poverty decomposition such that, although economic growth resulted in the worsened inequality within the NU minority, the redistribution took place in the direction to lift the marginally poor households in the NU minority group out of poverty.

Table 4

Poverty decomposition into growth and inequality during 1993–2006.

		2002–2004	2004–2006	2002–2006
Vietnam	Poverty change	–0.093	–0.035	–0.119
	Growth component	–0.099	–0.028	–0.123
	Redistribution component	0.006	–0.007	0.004
Urban	Poverty change	–0.030	0.003	–0.020
	Growth component	–0.020	0.001	–0.027
	Redistribution component	–0.010	0.002	0.007
Rural	Poverty change	–0.105	–0.046	–0.142
	Growth component	–0.119	–0.059	–0.155
	Redistribution component	0.014	0.013	0.013
Majority	Poverty change	–0.111	–0.044	–0.143
	Growth component	–0.125	–0.058	–0.153
	Redistribution component	0.014	0.014	0.010
Minorities	Poverty change	–0.094	–0.087	–0.150
	Growth component	–0.094	–0.070	–0.142
	Redistribution component	0	–0.017	–0.008
Khmer minority	Poverty change	–0.153	–0.067	–0.115
	Growth component	–0.237	0.023	–0.132
	Redistribution component	0.084	–0.090	0.017
NU minority	Poverty change	–0.086	–0.101	–0.165
	Growth component	–0.066	–0.094	–0.152
	Redistribution component	–0.020	–0.007	–0.013
CH minority	Poverty change	–0.108	–0.046	–0.137
	Growth component	–0.080	–0.095	–0.158
	Redistribution component	–0.029	0.049	0.020
Other minority	Poverty change	–0.104	–0.077	–0.152
	Growth component	–0.137	0.001	–0.140
	Redistribution component	0.033	–0.078	–0.012

Source: Authors' calculation, based on VHLSS 2002, 2004 and 2006.

ethnic minority group rooted in their own culture or the geographical location that would make them react differently to rapid changes in the transition period. The figures also suggest that there is considerable heterogeneity within each ethnic group in reacting to the rapid transition—some households benefited from the transition or the economic growth, while others, for example the poorest of the CH minority, did not. Nevertheless, the existing literature on inequality in Vietnam has mainly focused on ‘between groups’ inequality, that is the welfare gap between the ethnic majority and minority groups (Baulch et al., 2007; Imai et al., 2011a; Van de Walle & Gunewardena, 2001) drawing upon the Blinder–Oaxaca decomposition technique proposed by Blinder (1973) and Oaxaca (1973). Given the heterogeneity of household characteristics within each ethnic group, however, analysing the sources of inequality *within* each group might also offer an important insight into rising inequality as shown in Table 2 and Fig. 1.

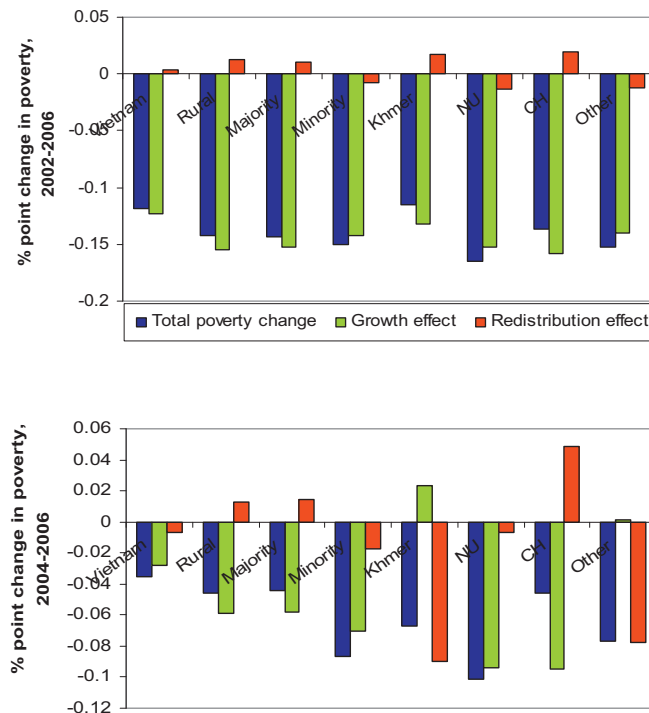
To identify how much inequality can be attributed to each explanatory factor, we apply the regression-based decomposition method proposed by Fields (2003). This technique enables us to quantify the sources of inequality and to clarify how the main force of inequality differs across five ethnic groups.

We first estimate the following log per capita consumption expenditure of i th household in j th ethnic group at time t by ordinary least square (OLS) estimation.

$$\ln c_{ijt} = \alpha_{jt} + X_{ijt}\beta_{jt} + \varepsilon_{ijt} \quad i = 1, \dots, N, \quad j = 1, \dots, 5 \quad (8)$$

A vector of household characteristics (X_{ijt}) includes various household and commune characteristics: the age of a household head and its square; gender of the head of household; their marital status; the share of female members; the dependency burden; the highest educational attainment of household members; the ratio of household members working in the industrial sector.¹⁷ These household composition variables might have particular importance in examining household welfare in the context of Vietnam's transition into a market economy (Brück, Danzer, Muravyev, & Weißhaar, 2008). The older the head of household is, the more difficulty he or she would have coping with the new system. The economic reforms, especially privatisation and marketisation, would expand the earning gap between gender or the level of educational attainment. For example, Liu (2001) finds that from 1993 to 1998 the gender wage gap had increased in the private sector,

¹⁷ Here we use the reduced form of consumption function where the current level of household consumption aggregates the consumption of all household members and is assumed to be a function of household characteristics. The specification reflects the standard models of consumer behaviour, such as permanent income or life cycle models (to be partly captured e.g. by household head's age, dependency burden, and land-holding as a proxy of household wealth or income) or the intra-household bargaining model (partly captured by gender of the head of household) (e.g. Deaton & Muellbauer, 1980; Deaton, 1992). Given the data constraints, we do not include household income, price of commodities, or shocks in the model and we estimate the model by simple OLS due to the technical requirement of regression decomposition method. See Imai et al. (2011b) for further discussions of econometric specifications and results of household consumption function using the same data.



Source: VHLSS 2002, 2004 and 2006

Fig. 2. Poverty decomposition into growth and redistribution components.

even though the overall wage gap (private and public sector) had contracted. Liu (2004) also observes that discrimination had a decisive role in the growing wage gap in the private sector in 1998. Likewise, human capital and the share of household members working in the industrial sector as proxies of human capital, are also important factors determining household welfare. Household assets, such as land, act as both collaterals for credit and income sources. In addition, it is widely observed that remittance is an important determinant of household welfare, especially for insurance purpose (e.g. Fafchamps & Lund, 2003). Therefore, we also include the following variables: the sizes of agricultural, sylvicultural, and aquacultural lands; dummy variables describing whether a household resides in a temporary, semi-permanent or permanent dwelling; and a dummy variable for whether a household receives remittances. Finally, to control the effect of commune characteristics on household welfare, we include a vector of commune dummy variables such as location, remoteness and infrastructure.

Once Eq. (8) is estimated, taking covariance with total consumption expenditure, $\ln c$, allows us to compute the factor contribution of log variance of per capita consumption expenditure as follows:

$$s_j(\ln c) = \frac{\text{cov}(\beta_j X_j, \ln c)}{\sigma^2(\ln c)} = \frac{\beta_j * \sigma(X_j) * \text{cor}(X_j, \ln c)}{\sigma(\ln c)} \quad (9)$$

Closely related to that proposed by Shorrocks (1982), this decomposition methodology can be applied to a broad class of inequality measures that are continuous, symmetric and equal to zero when all consumption expenditure is equal among households (Fields, 2003).

The results of regressions on the determinants of rural households' per capita consumption expenditure generally show similar patterns across the defined ethnic groups. For example, having more educated household members, working in industry and owning land tend to increase household consumption levels, while a higher dependency burden and a larger share of female members are likely to negatively affect household living standards.¹⁸

The results of decomposition are given in Table 5 where we observe different patterns in sources of inequality.^{19,20}

¹⁸ The tables for the regression results are omitted for the sake of brevity. They will be provided on request.

¹⁹ We decompose inequality of the predicted per capita consumption expenditure instead of per consumption expenditure itself in order to avoid having the residuals contributing as an unexplained part of inequality. The proportional contributions of factors found by decomposing the predicted value is essentially equivalent to the shares of the factor contributions when decomposing actual per capita consumption and taking the explained part of inequality as total inequality.

²⁰ As the proportional contributions of the independent variables are additive and sum to 1 (or 100%), we group these contributions into 4 categories – household demographic; education; asset; and infrastructure.

Table 5

Regression based inequality decomposition within ethnic group in 2002, 2004 and 2006.

	Majority	Khmer minority	NU minority	CH minority	Other minority
2002					
Household	25.87	7.79	8.24	12.79	6.88
Education	41.28	28.74	49.65	3.65	6.90
Asset	23.04	39.17	24.22	55.12	38.10
Infrastructure	9.82	24.30	17.89	28.44	48.12
Sum	100	100	100	100	100
2004					
Household	12.09	4.16	2.02	13.69	7.43
Education	58.68	9.46	61.38	8.84	3.74
Asset	26.07	71.36	19.21	39.88	53.96
Infrastructure	3.17	15.01	17.40	37.59	34.86
Sum	100	100	100	100	100
2006					
Household	22.44	5.97	15.44	24.63	8.61
Education	41.01	7.39	44.61	9.80	32.21
Asset	32.48	63.53	21.97	23.07	21.52
Infrastructure	4.07	23.11	17.99	42.50	37.66
Sum	100	100	100	100	100

Source: Authors' calculation, based on VHLSS 2002, 2004 and 2006.

As shown in the upper panel of Table 5, in 2002 the contribution of household demographic on total inequality is not relatively large across different ethnic groups over the years, in particular for minority groups. The factor of educational attainment accounts for 30–50% of inequality for the majority, Khmer minority and NU minority groups. In contrast, the contribution of education is very small for the CH minority and other minority groups. It is worthwhile noting that the estimates of factor contribution of inequality should not be misinterpreted to derive any policy implications. For example, compared to inequality attributable to asset factor in the CH minority in 2002 (55%), the lower contribution of education to total inequality (3.65%) is likely to draw our attention to the importance of the provision of educational facilities. However, this low contribution found in the CH minority may simply reflect lower educational attainment across most of the households in the group which resulted in lower inequality of education. Hence, the provision of schools and improving access to those facilities would be necessary for reducing *absolute* poverty of the CH minority group.

In contrast, an attempt to reallocate asset factor (e.g. land holding) might operate directly on total inequality (as *relative* poverty). It is also found that asset factor is closely associated with household consumption inequality for the Khmer and CH minorities. In particular, 55% of inequality within the CH group stems from difference in asset holdings. Ravallion and Van de Walle (2006) found supporting evidence of successful land reforms in Vietnam which resulted in efficient reallocation during the process of transition. However, their finding may not be applicable to the CH minority group. The substantial impact of asset factor on inequality implies that further government intervention leading to more drastic land reallocation is necessary for an effective pro-poor policy for the CH minority. While infrastructure has little impact on inequality within the majority, it shows a relatively large association with inequality within each of minority groups, especially for other minority.

The findings in 2002 broadly hold in 2004 and 2006. For example, the main driver of inequality within each group was generally unchanged. A few additional key findings are worth mentioning here. First, infrastructure was negligible over time in accounting for inequality of the majority. Second, it is surprising to find that 60–70% of inequality in the Khmer minority in 2004 and 2006 is attributed to the asset factor. We also observe the significant decline in the contribution of education factor for the Khmer minority. Third, while the importance of assets in accounting for inequality within the CH minority has decreased, especially in 2006, the contribution of infrastructure increased during four years. However, those two factors – assets and infrastructure – still dominate other factors. Finally, the other minority group shows most dramatic changes. For example, educational attainment explains only 7% and 3.5% of total inequality in 2002 and 2004 respectively. However, the contribution of education to inequality has sharply increased, accounting for 32%. Infrastructure factor was consistently one of the most important factors.

Our analysis of sources of inequality shows ethnic minorities in Vietnam should not be explained by a single category—ethnic minority. Nonetheless, as we stated earlier, the studies on ethnicity in Vietnam have mainly focused on the welfare gap between the ethnic majority and the minorities. This could cause us to lose sight of the diversity among ethnic minorities.

For the majority, consumption inequality was mostly associated with education, followed by household characteristics and asset. Unequal access to infrastructure was not a major factor. Thus, guaranteeing education access for all the households is key to inequality reduction. For the Khmer minority, asset inequality was the main driver of inequality, while equal access to infrastructure was important. For the NU minority, inequality of educational attainment was the main driver of inequality, followed by asset and infrastructure. For the CH minority and other minority, asset or infrastructure was the main factor. Our decomposition analysis of inequality supports the need for understanding the diversity of the causes of inequality across different ethnic groups in designing public policy to reduce inequality and increase living standards. Given this diversity, if our analysis has some validity for policy discussions, we can conclude that government policy aimed at equal access to

infrastructure and more equal distribution of assets, such as land, for ethnic minority groups would lead to more equal distribution of consumption and poverty reduction.

5. Conclusions

In the present study, we have examined changes in poverty, inequality and growth in rural Vietnam and the role played by ethnicity during Vietnam's post transition economic expansion. Specifically, we have attempted to explain different achievements among five representative ethnic groups. It is clear from the latest poverty data that although half of the minority population still fails to access basic needs, the pace of annual poverty reduction for these groups has surpassed that of the majority group over the period 2002–2006. This implies that Vietnam's growth benefited the majority first, and then promoted the improvement of living standards of minority groups. Economic growth during the transition period has generally been, in a relative sense, non-pro-poor. The estimated growth rate by ethnic sub-group, however, suggests that more detailed investigation into the livelihoods of each ethnic group is required, as the growth has different effects on the distribution of consumption expenditure depending on geographic location and the ethnic category to which a household belongs. For example, even among the ethnic minorities, the characteristics of economic growth differ substantially (notably between the NU minority and the CH minority).

For poverty decomposition, we have seen that redistribution has contributed to poverty reduction of households in the NU minority and other minority groups, whereas inequality within the majority, Khmer minority and CH minority groups continued to offset the growth impact over time. It is evident from our summary measures that the minorities in rural Vietnam are very heterogeneous and have been differently influenced by Vietnam's transition (i.e. the patterns of contributions of growth and inequality vary considerably according to ethnicity).

Our analysis quantifying the sources of inequality also provides us with similar conclusions. The factors contributing to consumption inequality within each ethnic group varied considerably and were mostly consistent over time. Moreover, while a given factor had a small effect on inequality for some ethnic groups, it had a dominant effect for others (e.g. asset for the Khmer minority). These findings suggest that a uniform government intervention focusing on only one factor, such as education, is likely to have a different effect on inequality in different ethnic groups. However, given the diversity across different ethnic groups, we can conclude that government policy aimed at equal access to infrastructure and more equal distribution of assets, such as land, would lead to more equal distribution of consumption and poverty reduction. Also, consideration of local needs would be necessary in designing and implementing public policies given the heterogeneous socio-economic circumstances surrounding each ethnic minority group. This can be delivered by more precise investigation of ethnic minorities at disaggregate level. One suggested disaggregation here is to take account of geographical environment, as it is one of the key factors of the heterogeneity of ethnic minorities.

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