Poverty of Ethnic Minorities in the Poorest Areas of Vietnam

Nguyen Viet, Cuong

20 November 2012

Poverty of Ethnic Minorities in the Poorest Areas of Vietnam

Nguyen Viet Cuong[1]

Abstract

This paper examines the poverty and inequality pattern, income and characteristics of households in the Program 135-II communes – the poorest areas in Vietnam. The poverty incidence decreased from 57.5 percent to 49.2 percent during the period 2007-2012. Although the poverty incidence decreased, the poverty gap and severity indexes of households in the Program 135-II areas did not decrease during 2007-2012. The decomposition analysis shows that the reduction of the poverty incidence in the poorest communes was achieved by the income growth. The inequality increased, thereby slightly raising the poverty incidence. Poverty is sensitive to economic growth. However, the elasticity of poverty with respect to income growth tends to decrease overtime. It means that income redistribution plays a very important role in decreasing the poverty gap and poverty severity.

Keywords: ethnic minority; household income; poverty; decomposition, Vietnam.

JEL Classifications: I31, I32, O12.

[1] National Economics University, Vietnam.
Tel: 0904 159 258. Email: c_nguyenviet@yahoo.com

1. Introduction

With a high economic growth rate achieved during the past two decades, Vietnam has become a middle income country. Poverty, both the incidence and severity level, has been decreasing. In middle 1990s, half of the population were below the consumption poverty line. In 2008, the poverty rate is around 14 percent (according to the 2008 Vietnam Household Living Standard Survey - VHLSS). Although there is a high economic growth and fast poverty reduction, not all households can benefit from the economic growth. Poverty remains very high in the mountain and highland, where there are a large population of ethnic minorities. Ethnic minorities account for around 14 percent of the Vietnam's population, but account for 50 percent of the poor population (according to the 2010 VHLSS). Economic growth and poverty reduction is not very successful in ethnic minorities. Many studies shows that chronic poverty is now a phenomenon of ethnic minorities (Pham et al., 2012; World Bank, 2012).

To reduce poverty in difficulty areas, the Government has launched the Program 135 which was targeted at the poor and ethnic minorities in the most difficult and poorest communes of Vietnam since 2000. This chapter examines the poverty pattern and characteristics of the poor in the poorest areas of Vietnam – communes covered by the Program 135 phase II (2006-2010). It also investigates the poverty dynamics of these households, and examines the relation between income growth, inequality and poverty of the households. This analysis relies on panel data from the Baseline Survey of the Program 135-II conducted in 2007 and the Endline Survey of the Program 135-II conducted in 2012. This section is structured into six as follows.

The second section introduces the data set used in the study. The third section examines the poverty and inequality pattern of households in the Program 135-II communes. It also decomposes the change in poverty into a change due to growth and a change in inequality. The fourth section examines characteristics of the poor including living conditions, livelihood and assets of households. The fifth section analyses the poverty dynamics of ethnic minorities and estimates the determinants of persistent and transient poverty. Finally, the sixth section concludes.

2. Data set

The main data source that is used in this study is from the Baseline Survey and Endline Survey of the Program 135-II in 2007 and 2012, respectively. The Baseline Survey (abbreviated as BLS 2007) of the Program 135-II was conducted by the General Statistical

Office (GSO) in 2007. The Endline Survey (abbreviated as ELS 2007) of the Program 135-II was conducted by the Indochina Research & Consulting (IRC) in 2012. Both surveys were implemented with technical assistance from UNDP.

For comparison, both the survey used the same questionnaire and covered the same sample of households. Data were collected using household and commune questionnaires. The household and commune questionnaires are similar to questionnaires of the Vietnam Household Living Standard Surveys (VHLSS). Information on households includes basic demography, employment and labor force participation, education, health, income, housing, fixed assets and durable goods, and participation of households in poverty alleviation programs. However, unlike the VHLSSs, BLS 2007 and ELS 2012 did not contain information on household expenditure. The commune questionnaires were used to collect basic information on communes' living standard including economic, social issues, infrastructure, etc.

The surveys covered 400 communes in the Program 135-II. In each commune, one village was randomly selected, and each selected village, 15 households were selected for interview. Thus the number of households covered in this survey 6,000. One important feature of this survey is that it is representative for the poor in the Program 135-II. There are a large proportion of ethnic minorities households surveyed. Thus BLS 2007 allows for analysis of small ethnic minorities, while VHLSSs do not.

3. Poverty and inequality of ethnic minorities

3.1. Poverty trend

There is a long list of poverty measures. However, the most widely used poverty measures would be three Foster-Greer-Thorbecke (FGT) poverty indexes. In this study, we examine poverty of households in the poorest communes using the three FGT indexes, which are computed as follows (Foster, Greer and Thorbecke, 1984):[2]

$$P_\alpha = \frac{1}{n}\sum_{i=1}^{q}\left[\frac{z - Y_i}{z}\right]^\alpha, \qquad (1)$$

where Y_i is a per capita income for person i (there are no data on consumption expenditure in the Baseline Survey 2007 as well as the Endline Survey in 2012). z is the poverty line, n is the number of people in the sample population, q is the number of poor people, and α can be interpreted as a measure of inequality aversion.

[2] For other poverty measures, see Deaton (1997) and Haughton and Khandker (2009).

When $\alpha = 0$, we have the headcount index H, which measures the proportion of people below the poverty line. When $\alpha = 1$ and $\alpha = 2$, we obtain the poverty gap PG, which measures the depth of poverty, and the squared poverty gap P_2 which measures the severity of poverty, respectively.

Table 1 presents the poverty indexes of households in the Program 135-II communes. Per capita income of households in these poorest communes increased by 20 percent from 6,039 to 7,295 thousand VND/year/person during 2007-2012. This ratio is lower than the income growth rate of the national level. According to the Vietnam Household Living Standard Surveys 2006 and 2010, real per capita income of households increased by around 50 percent during the period 2006-2010 to 16,644 thousand VND in 2010.

Among the households in the Program 135-II areas, Kinh households have substantially higher income than ethnic minorities. This finding on the gap between the Kinh and ethnic minorities is found in most studies on poverty in Vietnam (e.g., World Bank, 2012). Except Thai and Muong, all the ethnic minorities in the Program 135-II experienced an increase in per capita income. In 2010, H'Mong and Thai are ethnic minority groups who had the lowest per capita income in the poorest communes.

Table 1: Per capita income and the poverty rate of households in the Program 135-II communes

Groups	Per capita income (thousand VND)			Poverty rate (%)		
	2007	2012	Change	2007	2012	Change
All households	6,039.2***	7,294.6***	1,255.4***	57.5***	49.2***	-8.2***
	180.3	193.5	264.5	1.3	1.3	1.8
Ethnic minorities						
Kinh	9,273.6***	11,377.7***	2,104.2**	34.3***	32.0***	-2.3
	659.4	716.2	973.1	3.7	4.0	5.4
Ethnic minorities	5,210.4***	6,293.7***	1,083.3***	63.4***	53.5***	-10.0***
	140.3	169.7	220.2	1.3	1.3	1.8
Regions						
North	5,083.7***	6,551.1***	1,467.3***	65.2***	50.7***	-14.6***
	118.4	152.3	192.9	1.3	1.4	1.9
Central	6,131.5***	7,283.9***	1,152.5***	56.1***	54.3***	-1.8
	233.9	331.4	405.5	2.0	2.0	2.9
South	8,712.6***	9,608.3***	895.7	36.7***	38.2***	1.5
	776.2	824.6	1,131.2	4.7	4.7	6.6

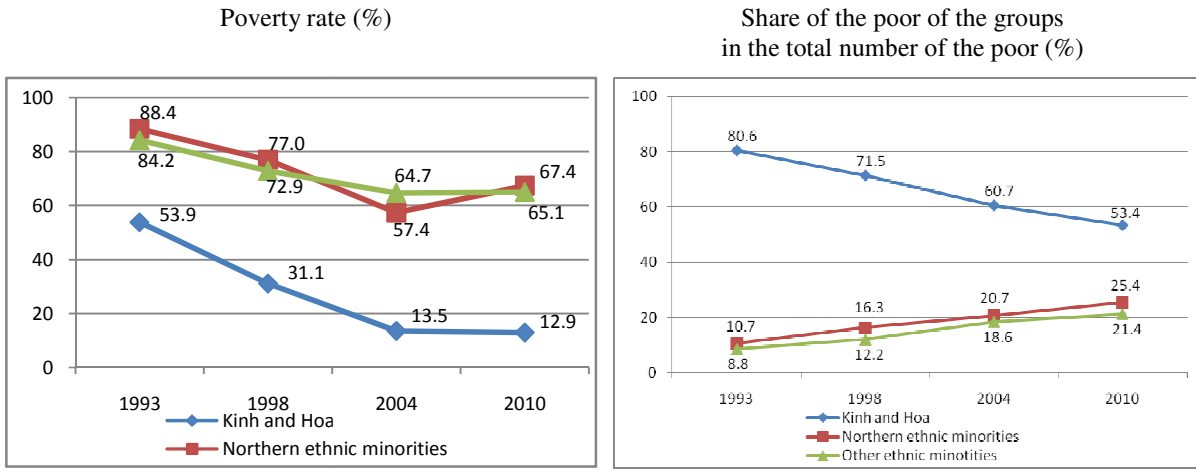
Note: * significantly different from zero at 10%; ** significant at 5%; *** significant at 1%.
Note: * significantly different from zero at 10%; ** significant at 5%; *** significant at 1%.
Income per capita is measured in the price of January 2012.
Standard errors in the second line below the estates.
Source: Estimation from Baseline Survey 2007 and Endline Survey 2012.

In this study, poverty is defined based on per capita income and income poverty line. The income poverty line is 2,400 thousand VND/person/year in the price of 2006. This is the national poverty line set up by the government for the period 2006-2010. We adjust this line to the price of 2007 and 2012.

Table 1 shows that the poverty rate decreased from 57.5 percent to 49.2 percent during the period 2007-2012. Poverty mainly decreased among ethnic minorities. Although Kinh has much lower poverty incidence, there is no success for them in poverty reduction during this period. This finding is different from the finding at the national level: Kinh household experienced a faster rate of poverty reduction during the last decade than ethnic minorities, and as a result the ethnic minorities account a larger proportion of the poor (Figure 1). Possibly, there are a large number of poverty reduction programs targeted at ethnic minorities in the Program 135-II communes, and the ethnic minorities can benefit more from these programs than Kinh. Nung, H'Mong and Tay are ethnic minority groups who were most successful in poverty reduction during the past five years.

By regions, households in Northern Mountain are poorer than those in the Central and the South. There are more poor ethnic minorities such as Nung, Tay and H'Mong in Northern Mountain. However, poverty was reduced faster in the Northern region.

Figure 1: Poverty rate and the share of the poor by Kinh and ethnic minorities



Note: The poor in this figure are those who have per capita expenditure below the expenditure poverty rate. The nominal expenditure poverty lines in 1993, 1998, 2004 and 2010 are 1160, 1790, 2077 and 7836 thousand VND/person/year.
Source: Authors' estimation from VLSS 1993, 1998, and VHLSSs 2004, 2010.

The poverty gap and severity indexes are presented in Table 2. There is almost no change in these poverty indexes during the period 2007-2012. The point estimate of the poverty severity index even increased. There is a large variation in the poverty gap and severity among ethnic minorities. There is an increase in the poverty gap and severity among Thai and Muong households. H'Mong has experienced reduction in all the three

poverty indexes. By regions, poverty gap and severity decreased for Northern households, but increased for Central households.

Table 2: Poverty gap and severity indexes by demographics and regions

Groups	Poverty gap index (%)			Poverty severity index (%)		
	2007	2012	Change	2007	2012	Change
All households	23.5***	22.4***	-1.1	12.5***	13.4***	0.9
	0.7	0.8	1.0	0.4	0.6	0.8
Ethnic minorities						
Kinh	11.7***	13.3***	1.5	6.0***	8.0***	2.1
	1.5	2.3	2.7	0.8	2.0	2.2
Ethnic minorities	26.5***	24.6***	-1.9*	14.2***	14.7***	0.5
	0.7	0.8	1.1	0.5	0.6	0.8
Regions						
North	27.1***	22.0***	-5.1***	14.4***	12.5***	-1.9**
	0.8	0.8	1.1	0.5	0.6	0.8
Central	23.5***	27.3***	3.8**	12.7***	17.5***	4.7***
	1.1	1.3	1.7	0.8	1.0	1.3
South	12.9***	17.0***	4.0	6.8***	10.8***	4.0
	1.9	3.0	3.6	1.2	2.7	2.9

Note: * significantly different from zero at 10%; ** significant at 5%; *** significant at 1%.
Standard errors in the second line below the estimates.
Source: Estimation from Baseline Survey 2007 and Endline Survey 2012.

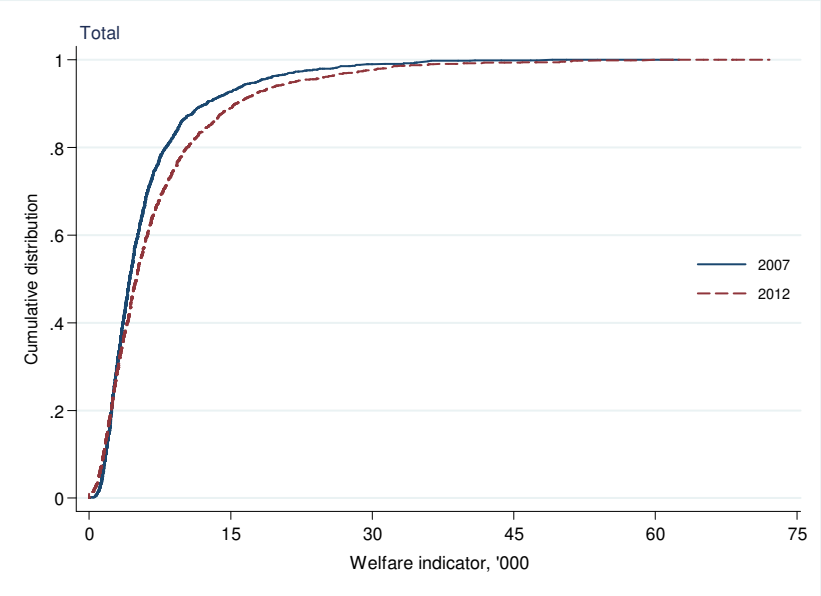
There is a small change in distribution of the poor by different ethnic minority groups. The share of Thai households in the total poor increased, while the share of H'Mong households decreased during the period 2007-2012.

Table 3: Share of the poor

Groups	Share of the poor (%)			Share of the population (%)		
	2007	2012	Change	2007	2012	Change
Kinh	12.2	12.8	0.6	20.4	19.7	-0.7
	1.54	1.85	2.41	1.30	1.27	1.82
Ethnic minorities	87.8	87.2	-0.6	79.6	80.3	0.7
	1.54	1.85	2.41	1.30	1.27	1.82
Regions						
North	63.9	58.8	-5.1*	56.3	57.1	0.8
	1.76	1.93	2.61	1.35	1.33	1.90
Central	23.8	26.9	3.1*	24.4	24.4	0.0
	1.22	1.44	1.88	0.95	0.95	1.34
South	12.3	14.3	2.0	19.3	18.5	-0.8
	1.83	2.08	2.77	1.50	1.43	2.08
Total	100.0	100.0	0.0	100.0	100.0	0.0
	0.00	0.00	0.00	0.00	0.00	0.00

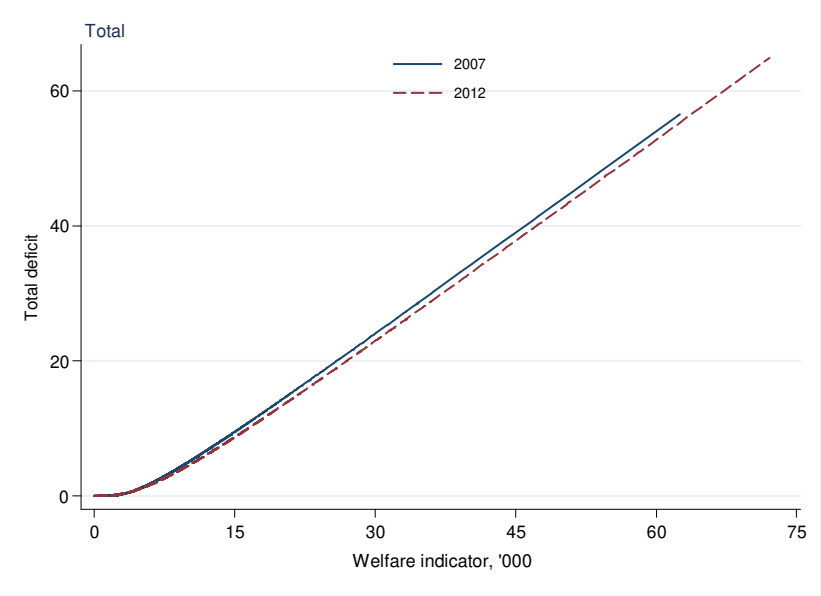
Note: * significantly different from zero at 10%; ** significant at 5%; *** significant at 1%.
Standard errors in the second line below the estimates.
Source: Estimation from Baseline Survey 2007 and Endline Survey 2012.

Figure 2: Poverty incidence curve



Source: Estimation from Baseline Survey 2007 and Endline Survey 2012.

Figure 3: Poverty deficit curve

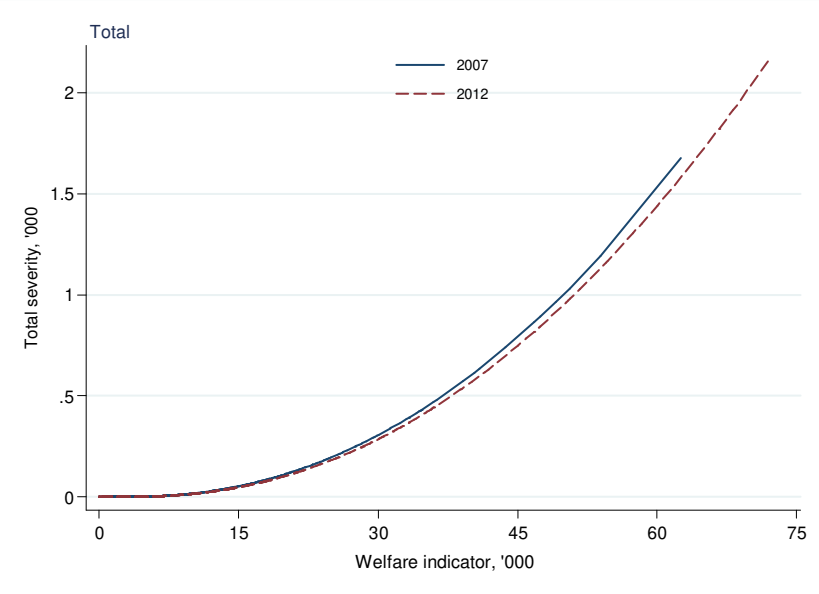


Source: Estimation from Baseline Survey 2007 and Endline Survey 2012.

Figure 2 shows the cumulative distribution of per capita income. The vertical axis presents the poverty rate corresponding to different poverty lines indicated by the horizontal axis. It shows that the poverty rate would be increased if the poverty line is set at the low level. The poverty depth curve and poverty severity curve presents the aggregate poverty gap and the squared poverty gap at different poverty lines, respectively

(Figure 2 and 3). The point estimates of the poverty gap and severity increased regardless of poverty lines.

Figure 4: Poverty severity curve



Source: Estimation from Baseline Survey 2007 and Endline Survey 2012.

3.1. Inequality analysis

To measure inequality, we use the Gini coefficient and generalized entropy measures. The Gini index is computed as follows (Deaton, 1997):

$$G = \frac{n+1}{n-1} - \frac{2}{n(n-1)\overline{Y}} \sum_{i=1}^{n} \rho_i Y_i \qquad (2)$$

where ρ_i is the rank of person *i* in the *Y*-distribution, counting from the richest so that the richest has the rank of 1. $\overline{Y}$ is the average per capita income. *n* is the number of people in the sample.

The value of the Gini coefficient varies from 0 when everyone has the same income to 1 when one person has everything. The closer a Gini coefficient is to one, the more unequal is the income distribution.

The generalized entropy (GE) inequality measures are measured by the following formula:

$$GE(\alpha) = \frac{1}{\alpha(\alpha-1)}\left[\frac{1}{n}\sum_{i=1}^{n}\ln\left(\frac{Y_i}{\overline{Y}}\right)^{\alpha} - 1\right] \quad (3)$$

The GE indexes range from zero and infinity, and higher values indicate higher inequality. α is the weight given to different parts of the income distribution. GE(α) with lower values is more sensitive to changes in the lower tail of the distribution, and GE(α) with higher is more sensitive to changes in the upper tail of the distribution. GE(0) is called the Theil L index of inequality, while GE(1) is called the Theil T index.[3]

Table 4 presents the estimates of the Gini index and ratios of different percentiles of per capita income distribution. The Gini index (measured in 100) increased from 43.0 in 2007 to 47.0 in 2012. The Lorenz curve in 2012 becomes more far away from the diagonal line (Figure 5). The ratio of the $90^{th}/10^{th}$ income percentile increased from 7.2 to 10.3. Inequality within Kinh households as well as within ethnic minority households also increased during this period.

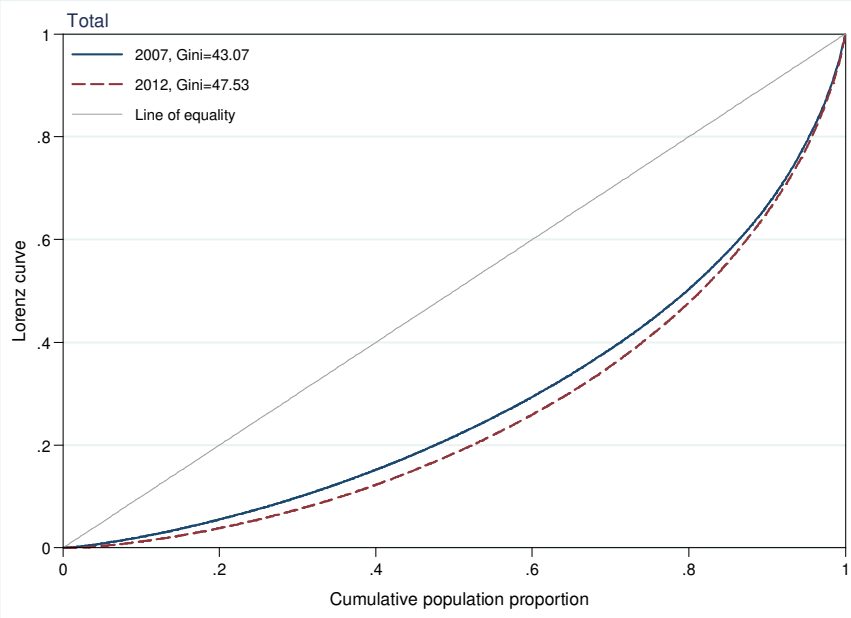
Table 4: Inequality in per-capita income distribution

	Bottom half of the Distribution		Upper half of the Distribution		Interquartile Range	Tails	
	p25/p10	p50/p25	p75/p50	p90/p75	p75/p25	p90/p10	Gini
Total							
2007	1.51	1.64	1.64	1.78	2.68	7.22	43.00
	0.04	0.03	0.04	0.08	0.09	0.43	1.45
2012	1.76	1.88	1.81	1.73	3.40	10.34	47.03
	0.07	0.05	0.05	0.06	0.12	0.59	1.21
Kinh							
2007	1.79	1.37	1.93	1.78	2.64	8.38	42.77
	0.11	0.10	0.14	0.14	0.28	1.04	3.07
2012	1.89	1.82	1.90	1.73	3.45	11.25	45.43
	0.24	0.20	0.15	0.14	0.35	2.11	2.93
Ethnic minorities							
2007	1.46	1.60	1.62	1.55	2.58	5.84	40.30
	0.04	0.03	0.04	0.04	0.08	0.23	1.38
2012	1.72	1.83	1.72	1.68	3.16	9.14	44.91
	0.06	0.05	0.05	0.05	0.11	0.46	1.30

Note: Standard errors in the second line below the estimates.
Source: Estimation from Baseline Survey 2007 and Endline Survey 2012.

[3] For other poverty and inequality measures, see Haughton and Khandker (2009).

Figure 5. Lorenz Curve



Tables 5 and 6 present the three generalized entropy measures of income inequality. Similar to the Gini index, these indexes increased during 2007-2012 for the whole sample, as well as within the Kinh households and within ethnic minority households. An advantage of the generalized entropy measures is that the total inequality can be decomposed simply into an inequality component within groups and an inequality component due to income differences between groups. Table 5 decomposes the total inequality into inequality within Kinh and ethnic minority households and inequality between Kinh and ethnic minority households. A large proportion of the total inequality is due to within-group inequality. The between-group inequality component accounts for less than 10 percent of the total inequality.

Table 5: Decomposition of inequality by Kinh and ethnic minorities

	2007			2012		
	GE(0)	GE(1)	GE(2)	GE(0)	GE(1)	GE(2)
Total	31.1	32.8	46.6	40.0	38.6	53.8
Ethnic minorities	27.2	28.9	41.2	36.5	35.2	48.7
Kinh	31.4	30.7	38.4	37.8	34.7	42.8
Within-group inequality	28.1	29.5	42.9	36.7	35.0	49.8
Between-group inequality	3.0	3.3	3.7	3.3	3.6	4.1
Between as a share of total	9.7	10.1	7.9	8.1	9.3	7.5

Source: Estimation from Baseline Survey 2007 and Endline Survey 2012.

Table 6 decomposes the total inequality into inequality within regions and inequality between regions. Similarly, a large proportion of the total inequality is due to inequality within regions. The inequality component due to differences between regions accounts for a small fraction of the total inequality.

Table 6: Decomposition of inequality by regions

	2007			2012		
	GE(0)	GE(1)	GE(2)	GE(0)	GE(1)	GE(2)
Total	31.1	32.8	46.6	40.0	38.6	53.8
North	26.8	29.0	41.8	33.8	33.2	45.8
Central	31.1	32.1	45.7	50.6	47.7	69.5
South	31.6	31.1	39.3	38.2	35.6	44.3
Within-group inequality	28.8	30.4	44.0	38.7	37.3	52.4
Between-group inequality	2.3	2.4	2.6	1.3	1.3	1.4
Between as a share of total	7.3	7.4	5.6	3.2	3.5	2.7

Source: Estimation from Baseline Survey 2007 and Endline Survey 2012.

Since inequality increased over the period 2007-2012, the effect of income growth on poverty reduction will be mitigated. Table 7 presents the decomposition of the change in poverty overtime into three components: one due to the income growth, one another due to the income distribution change, and one called a residual. The decomposition method is from Datt and Ravallion (1991). The growth component of a change in the poverty measure from year 2007 to year 2012 is defined as the change in poverty due to a change in the mean income from 2007 to 2012, while holding the income distribution (the Lorenz curve) unchanged. The redistribution component is the change in poverty due to a change in the income distribution from 2007 to 2012, while keeping the mean income fixed at the base year. The difference between the total change in poverty and the changes in poverty due to the income growth and income redistribution is called the residual.

It shows that poverty reduction of the households in the poorest communes was achieved by the income growth. The inequality increased, thereby slightly raising the poverty incidence. Within ethnic minority households and within Kinh households, income growth contributed mainly to poverty reduction, but income distribution had opposite effects on poverty. Even total inequality within ethnic minority households increased (see above Tables), income distribution did have a negative effect on poverty incidence. This effect is small. For Kinh households, income distribution became more unequal, thereby increase their poverty rate.

Table 7: Growth and redistribution decomposition of poverty changes

	Incidence of poverty (%)			Change in incidence of poverty		
	2007	2012	Actual change	Growth	Redistributi -on	Residual
Total	57.50	49.25	-8.25	-10.56	0.49	1.83
Ethnic minorities	63.45	53.48	-9.96	-10.38	-1.02	1.44
Kinh	34.29	31.98	-2.31	-12.04	5.77	3.96

Source: Estimation from Baseline Survey 2007 and Endline Survey 2012.

Tables 8 and 9 present the elasticity of the poverty rate with respect to the mean income and inequality (measured by the Gini coefficient), respectively. The elasticity to income is computed by shifting per capita income of all the households by a fixed amount and estimating the new poverty indexes. Then the elasticity is estimated using the percentage change in the poverty indexes and the percentage change in the mean income. The elasticity to Gini is estimated by increasing per capita incomes of all the households by the same fixed transferred income level, then normalizing incomes to bring the new mean level of income to the old mean level (tax on incomes).

Table 8 shows that poverty is quite elastic to the income growth. However, the elasticity tends to decrease overtime. It means that now to reduce the same percentage of the poverty index, income needs to be increased more strongly than before. For 2012, the elasticity of the poverty gap and severity is larger than the elasticity of the poverty rate. It means that reducing the poverty gap and poverty severity requires more income growth than reducing the poverty rate.

Table 8: Elasticity of poverty with respect to the income

	Poverty Headcount Rate (P0)			Poverty Gap (P1)			Squared Poverty Gap (P2)		
	2007	2012	change	2007	2012	change	2007	2012	change
Ethnic minorities	-0.79	-0.89	-0.10	-1.30	-1.08	0.22	-1.58	-1.22	0.36
Kinh	-2.56	-0.81	1.74	-1.62	-1.28	0.35	-1.69	-1.16	0.53
Total	-1.00	-0.88	0.12	-1.33	-1.10	0.23	-1.59	-1.22	0.37

Source: Estimation from Baseline Survey 2007 and Endline Survey 2012.

The elasticity of poverty incidence respect to inequality was quite small, but increased quickly from 0.27 in 2007 to 0.61 in 2012. The elasticity of the poverty gap and poverty severity with respect to inequality is very high. For 2012, a one-percent decrease in Gini would lead to 2.1 percent reduction in the poverty gap index and 3.3 percent reduction in the poverty severity index. This finding suggests that income redistribution plays a very important role in decreasing the poverty gap and poverty severity.

Table 9: Elasticity of poverty with respect to the inequality

	Poverty Headcount Rate (P0)			Poverty Gap (P1)			Squared Poverty Gap (P2)		
	2007	2012	change	2007	2012	change	2007	2012	change
Ethnic minorities	0.05	0.31	0.27	1.18	1.64	0.46	2.14	2.76	0.62
Kinh	2.65	2.80	0.15	3.32	3.80	0.49	4.65	5.21	0.56
Total	0.27	0.61	0.33	1.59	2.08	0.49	2.70	3.32	0.62

Source: Estimation from Baseline Survey 2007 and Endline Survey 2012.

4. Poverty dynamics of ethnic minorities

Analysis of poverty dynamics often requires long panel data. Basically, the chronically poor are households whose living standard is below a defined poverty line for a period of several years, while the transiently poor experience some non-poverty years during that period (Hulme and Shepherd, 2003). Jalan and Ravallion (2000) decompose poverty into two components: the transient poverty due to the intertemporal variability in consumption, and the chronic poverty simply determined by the mean consumption overtime. However this method requires longitudinal data with at least three repeated observations. In this study, we use a simple approach to examine the dynamics of poverty in the Program 135-II communes – the poorest areas of Vietnam. More specifically, we use panel data to classify households into four groups: persistently poor who were poor in both 2007 and 2012; those escaping poverty who were poor in 2007 but non-poor in 2012; those falling into poverty who were non-poor in 2007 but became poor in 2012; and persistently poor who were non-poor in both 2007 and 2012. Households who escaped from poverty and those who fell into poverty can be regarded as the transiently poor.

Table 27 presents the proportion of households falling into the four poverty categories. Overall, 35 percent of households were poor in both years. There were a large proportion of households in transient poverty. 22.1 percent of households escaped from poverty, but 14.3 percent of household fell into poverty. Kinh households are more likely to be transiently poor, while ethnic minority households are more likely to be persistently poor. Although Kinh poor households were more likely to escape poverty, they also had a large proportion of non-poor falling into poverty in 2012.

By ethnic minorities, there is a high proportion of chronic poverty among Thai, H'Mong and Dao households. H'Mong, Nung, Tay and Dao are those who were more likely to escape poverty than other ethnic minorities. Thai and Dao households were more vulnerable to poverty: 21 percent of Thai households and 18 percent of Dao households fell into poverty in 2012.

Table 10: Poverty transition during 2007-2012

Groups	*Persistently poor:* Poor in both 2007 and 2012	*Escaped poverty:* Poor in 2007, and non-poor in 2012	*Fell into poverty:* Non-poor in 2007, and poor in 2012	*Persistently non-poor:* Non-poor in both 2007 and 2012	Total
All households	35.0	22.1	14.3	28.6	100.0
	(1.2)	(1.0)	(1.0)	(1.2)	
Ethnic minorities					
Kinh & Hoa	16.7	18.1	15.3	49.9	100.0
	(3.2)	(2.9)	(3.3)	(3.8)	
Ethnic minorities	39.5	23.1	14.0	23.4	100.0
	(1.3)	(1.1)	(0.9)	(1.1)	
Ethnic minority groups					
Tày	32.4	24.2	11.3	32.2	100.0
	(2.7)	(2.5)	(1.8)	(2.7)	
Thái	41.0	15.6	21.9	21.5	100.0
	(3.4)	(2.4)	(3.0)	(2.7)	
Mường	32.8	13.4	15.6	38.3	100.0
	(3.6)	(2.6)	(2.8)	(3.8)	
Nùng	33.3	26.3	8.2	32.1	100.0
	(4.1)	(3.7)	(2.0)	(4.4)	
H'Mông	51.5	31.5	7.8	9.2	100.0
	(3.0)	(2.9)	(1.6)	(1.7)	
Dao	38.2	23.1	17.7	21.0	100.0
	(3.0)	(2.6)	(2.5)	(2.4)	
Other ethnic minorities	35.7	22.6	15.0	26.7	100.0
	(2.6)	(2.3)	(2.1)	(2.7)	
Regions					
North	39.2	24.7	11.5	24.6	100.0
	(1.4)	(1.3)	(0.9)	(1.2)	
Central	37.7	18.7	16.5	27.0	100.0
	(2.0)	(1.6)	(1.6)	(1.8)	
South	18.3	18.4	19.9	43.3	100.0
	(4.0)	(3.5)	(3.9)	(4.5)	

Note: Standard errors in the second line below the estimates.
Source: Estimation from Baseline Survey 2007 and Endline Survey 2012.

To examine determinants of poverty status, we use a standard multinomial logit model.[4] In our study, households have the probability of being in four mutually exclusive poverty statuses: persistently poor; escaped poverty; fell into poverty; and persistently poor. The probability of household *i* being in the poverty status *j* is modeled as follows**:**

[4] Multinomial logit models are presented in most econometrics textbooks such as Wooldridge (2001).

$$P_{ij} = \frac{e^{X_i\beta_j}}{\sum_{k=1}^{m} e^{X_i\beta_k}}, \tag{4}$$

where X is a vector of household characteristics, and β is a vector of coefficients to be estimated. Since the coefficients in the multinomial logit model do not have clear meaningful interpretation, we compute the marginal effect as follows.

$$\begin{aligned}\frac{\partial P_{ij}}{\partial X_i} &= \frac{e^{X_i\beta_j}}{\sum_{k=1}^{m} e^{X_i\beta_k}}\beta_j - \frac{e^{X_i\beta_j}}{\left(\sum_{k=1}^{m} e^{X_i\beta_k}\right)^2}\sum_{k=1}^{m} e^{X_i\beta_k}\beta_k \\ &= P_{ij}\beta_j - P_{ij}\sum_{k=1}^{m} P_{ik}\beta_k. \end{aligned} \tag{5}$$

Table 28 presents the marginal effects of explanatory variables on the probability of households being in the four poverty statuses. Age of head has the effect on chronic poverty as expected: households with a young or an old household head are more likely to fall in persistent poverty. Households with middle age heads have a lower probability of being persistently poor. Households with female heads tend to have lower a lower probability of being persistently poor. High education of household heads is positively correlated with the probability of being persistently non-poor and negatively correlated with the probability of being persistently poor.

Ethnic minorities also matter to the poverty dynamics. Compared with Kinh households (base group), Tay and Muong households are more likely to be chronically poor. Thai households tend to be fall in poverty, while H'Mong households tend to escape from the poverty.

Households with a large size and a high proportion of children and elderly are more likely to be persistently poor. On the contrary, persistently non-poor households tend to have a lower household size and a lower proportion of children and elderly.

Assets are important for not being persistently poor. Households with large living areas, crop lands, and receiving remittances are less likely to be persistently poor. However, these assets are not enough to help households escape poverty and not fall in poverty.

Table 11: Marginal effect in multinomial logit regression

Explanatory variables	Dependent variable			
	Persistently poor: Poor in both 2007 and 2012	*Escaped poverty:* Poor in 2007, and non-poor in 2012	*Fell into poverty:* Non-poor in 2007, and poor in 2012	*Persistently non-poor:* Non-poor in both 2007 and 2012
Age head	-0.0196***	-0.0035	0.0019	0.0212***
	(0.0063)	(0.0065)	(0.0051)	(0.0076)
Age head squared	0.0002**	0.0001	-0.0000	-0.0002***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)

Explanatory variables	Dependent variable			
	Persistently poor: Poor in both 2007 and 2012	*Escaped poverty:* Poor in 2007, and non-poor in 2012	*Fell into poverty:* Non-poor in 2007, and poor in 2012	*Persistently non-poor:* Non-poor in both 2007 and 2012
Head is male	0.1032**	0.0059	-0.0218	-0.0873
	(0.0421)	(0.0523)	(0.0331)	(0.0660)
Schooling years of head	-0.0305***	-0.0041	-0.0011	0.0357***
	(0.0043)	(0.0040)	(0.0033)	(0.0047)
Kinh	Omitted			
Tày	0.1313**	-0.0107	0.0402	-0.1609***
	(0.0663)	(0.0537)	(0.0478)	(0.0526)
Thái	0.0707	-0.0633	0.1441**	-0.1515***
	(0.0617)	(0.0491)	(0.0628)	(0.0504)
Mường	0.1544**	-0.1048**	0.0710	-0.1206**
	(0.0642)	(0.0411)	(0.0535)	(0.0546)
Nùng	0.0705	0.0401	-0.0125	-0.0981
	(0.0658)	(0.0582)	(0.0514)	(0.0646)
H'Mông	0.0571	0.1524**	0.0172	-0.2266***
	(0.0693)	(0.0738)	(0.0467)	(0.0539)
Dao	0.0167	-0.0057	0.1369*	-0.1479***
	(0.0612)	(0.0626)	(0.0785)	(0.0554)
Other ethnic minorities	0.0273	0.0895**	-0.0110	-0.1059
	(0.0734)	(0.0440)	(0.0296)	(0.0749)
North	Omitted			
Central	-0.0620	-0.0660	0.1257***	0.0023
	(0.0414)	(0.0465)	(0.0453)	(0.0548)
South	-0.0505	-0.0963*	0.1412***	0.0056
	(0.0713)	(0.0496)	(0.0543)	(0.0825)
Household size	0.0393***	0.0084	-0.0198***	-0.0278**
	(0.0076)	(0.0092)	(0.0070)	(0.0116)
Proportion of children	0.2942**	-0.0068	-0.1072*	-0.1802**
	(0.1179)	(0.0627)	(0.0630)	(0.0740)
Proportion of elderly	0.2422***	-0.1986*	-0.0167	-0.0270
	(0.0921)	(0.1094)	(0.0795)	(0.1059)
Proportion of female members	0.0714	0.0148	-0.0754	-0.0108
	(0.0757)	(0.0701)	(0.0495)	(0.0938)
Per capita living area (m2)	-0.0077***	-0.0049*	0.0033**	0.0092***
	(0.0029)	(0.0027)	(0.0016)	(0.0023)
Per capita annual crop land (ha)	-0.1065***	-0.0904***	0.0587***	0.1382***
	(0.0268)	(0.0223)	(0.0162)	(0.0235)
Per capita perennial crop land (ha)	-0.0106	0.0005	-0.0077	0.0178*
	(0.0116)	(0.0095)	(0.0090)	(0.0108)
Poverty rate of commune	0.0034***	0.0009	-0.0012*	-0.0032**
	(0.0010)	(0.0009)	(0.0006)	(0.0013)
Receiving remittances	-0.1179***	-0.0316	0.0359	0.1136***
	(0.0422)	(0.0458)	(0.0252)	(0.0397)

Explanatory variables	Dependent variable			
	Persistently poor: Poor in both 2007 and 2012	*Escaped poverty:* Poor in 2007, and non-poor in 2012	*Fell into poverty:* Non-poor in 2007, and poor in 2012	*Persistently non-poor:* Non-poor in both 2007 and 2012
Receiving allowances	0.0606	-0.0700**	-0.0100	0.0194
	(0.0384)	(0.0312)	(0.0248)	(0.0481)
Borrowing from VBSP bank	0.0064	0.0037	0.0411*	-0.0512
	(0.0294)	(0.0264)	(0.0227)	(0.0408)
Observations	3,515	3,515	3,515	3,515

Note: * significantly different from zero at 10%; ** significant at 5%; *** significant at 1%.
Standard errors in the second line below the estimates.
Source: Estimation from Baseline Survey 2007 and Endline Survey 2012.

5. Conclusions

Poverty, especially chronic poverty, in Vietnam will be a phenomenon of ethnic minorities. Although ethnic minorities is around 14 percent of the total population, they accounts approximately for 50 percent of the poor. The poor ethnic minorities tend to live in remote mountains and highlands. During the period 2006-2010, the government of Vietnam implemented the Program 135-phase II that provides supports for the poor and ethnic minorities in the communes with special difficulties and high concentration of ethnic minority people. This chapter examines the poverty and inequality pattern, income and characteristics of households in the Program 135-II communes – the poorest areas in Vietnam.

The poverty incidence decreased from 57.5 percent to 49.2 percent during the period 2007-2012. Poverty mainly decreased among ethnic minorities. Nung, H'Mong and Tay are ethnic minority groups who were most successful in poverty reduction during the past five years. However, there was almost no decrease in the poverty rate of Kinh households.

Although the poverty incidence decreased, the poverty gap and severity indexes of households in the Program 135-II areas did not decrease during 2007-2012. There is an increase in the poverty gap and severity among Thai and Muong households. H'Mong is a special group who has experienced reduction in all the three poverty indexes.

Per capita income of households increased by around 20 percent during 2007-2012. Households at the low levels of income experienced a lower growth rate of income than households at the high levels of income. As a result, income inequality among households in the Program 135-II communes increased overtime. The Gini index (measured in 100) increased from 43.0 in 2007 to 47.0 in 2012. Inequality within Kinh

households as well as within ethnic minority households also increased during this period. We decompose the total inequality into inequality within Kinh and ethnic minority households and inequality between Kinh and ethnic minority households. A large proportion of the total inequality is due to within-group inequality. The between-group inequality component accounts for less than 10 percent of the total inequality.

The decomposition analysis shows that poverty reduction of the households in the poorest communes was achieved by the income growth. The inequality increased, thereby slightly raising the poverty incidence. Poverty is sensitive to economic growth. However, the elasticity of poverty with respect to income growth tends to decrease overtime. It means that income redistribution plays a very important role in decreasing the poverty gap and poverty severity.

Households in the Program 135-II communes rely largely on agricultural income. Nearly 60 percent of total income of a households is from agricultural activates. There is a transition from farm to non-farm activities. The share of income from wage tends to increase overtime, albeit at a low rate. The share of non-farm income in total income was very limited, at around 5 percent.

To analyse the poverty dynamics, we use panel data to classify households into four groups: persistently poor who were poor in both 2007 and 2012; those escaping poverty who were poor in 2007 but non-poor in 2012; those falling into poverty who were non-poor in 2007 but became poor in 2012; and persistently poor who were non-poor in both 2007 and 2012. Overall, 35 percent of households were poor in both years. There were a large proportion of households in transient poverty. 22.1 percent of households escaped from poverty, but 14.3 percent of household fell into poverty. Kinh households are more likely to be transiently poor, while ethnic minority households are more likely to be persistently poor. Although Kinh poor households were more likely to escape poverty, they also had a large proportion of non-poor falling into poverty in 2012.

References

Alderman, H. and Haque, T. (2006) 'Countercyclical Safety Nets for the Poor and Vulnerable', *Food Policy* 31(4): 372-383.

Coleman, B. E. (2002), "Microfinance in Northeast Thailand: Who benefits and How much?" *Asian Development Bank - Economics and Research Department Working Paper 9.*

Datt, G. and Ravallion, M. (1991), "Growth and Redistribution Components of Changes in Poverty Measures: A Decomposition with Applications to Brazil and India in the 1980s", *Living Standard Measurement Study*, Working Paper No. 83.

Deaton Angus (1997), "The Analysis of Household Surveys", the Johns Hopkins University Press, Baltimore, Maryland, U.S.A.

Farrington, J. and Slater, R. (2006) 'Introduction: Cash Transfers: Panacea for Poverty Reduction or Money Down the Drain?', *Development Policy Review* 24(5): 499–511

Farrington, J. and Slater, R. (2006) 'Introduction: Cash Transfers: Panacea for Poverty Reduction or Money Down the Drain?', *Development Policy Review* 24(5): 499–511

Finan, F., Sadoulet E., De Janvry A., 2005. Measuring the poverty reduction potential of land in rural Mexico. *Journal of Development Economics* 77: 27– 51.

Foster, J., J. Greer, E. Thorbecke (1984), "A Class of Decomposable Poverty Measures", *Econometrica*, 52, 761-765.

Haughton Jonathan, Shahidur R. Khandker (2009), *Handbook on Poverty and Inequality*, The World Bank, 1818 H Street, NW, Washington, DC, the USA.

Hulme, D., and Shepherd, A. (2003), "Conceptualizing Chronic Poverty", *World Development*, Vol. 31, No 3.

Jalan, J., and Ravallion, M. (2000), "Is Transient Poverty Different? Evidence for Rural China", *Journal of Development Studies* (Special Issue) (August).

Lagarde M, Haines A, Palmer N (2009), "The impact of conditional cash transfers on health outcomes and use of health services in low and middle income countries (Review)", The Cochrane Collaboration. Published by JohnWiley & Sons, Ltd.

Lanjouw, J. O. and P. Lanjouw. 1995. Rural nonfarm employment: A survey. Policy Research Working Paper, 1463. The World Bank.

Lanjouw, P. 1998. Ecuador's rural nonfarm sector as a route out of poverty. Policy Research Working Paper, 1094. The World Bank.

Lipton, M. 1985. Land assets and rural poverty. World Bank Staff Working Papers, No. 744.

Lloyd-Sherlock, P. (2006) 'Simple Transfers, Complex Outcomes: The Impacts of Pensions on Poor Households in Brazil', *Development and Change* 37(5): 969-995.

M. H. Quach and a. W. Mullineux (2007), "The Impact of Access to Credit on Household Welfare oin Rural Vietnam", *Research In Accounting In Emerging Economies* Vol. 7, pp: 279–307.

Morduch, J. (1995), "Income Smoothing and Consumption Smoothing", *Journal of Economic Perspectives* 9(3): 103-14.

Nguyen, V.C. (2008), "Is a Governmental Microcredit Program for the Poor really Pro-poor? Evidence from Vietnam", *The Developing Economies* 46 (2), pp: 151 – 187.

Pham, T., and Lensink, R. (2008), "Is Microfinance an Important Instrument for Poverty Alleviation? The Impact of Microcredit Programs on Self-employment Profits in Vietnam", The Faculty of Economics and Business, University of Groningen, The Netherlands.

Pham. H., Le. T, Nguyen C. (2011), "Poverty of the Ethnic Minorities in Vietnam: Situation and Challenges from the P135-II Communes", Research report for State Committee for Ethnic Minority Affairs of Vietnam and United Nations Development Program, Hanoi, Vietnam.

Pitt, M., and Khandker, S. (1998), "The Impact of Group-Based Credit Programs on Poor Households in Bangladesh: Does the Gender of Participants Matter?", *Journal of Political Economy* 106(5): 958-995.

Ruben R and M. van den Berg. 2001. Nonfarm employment and poverty alleviation of rural farm households in Honduras. *World Development* 29(3): 549-560.

UND (2006), Human Development Report 2006.

WHO (2004), Meeting the MDG Drinking Water and Sanitation: A Mid- Term Assessment of Progress. Geneva: WHO, ISBN 92 4 156278 1.

Wooldridge J. M. (2001). *Econometric Analysis of Cross Section and Panel Data.* The MIT Press, Cambridge, Massachusetts London, England.

World Bank (2012), "Well Begun, Not Yet Done: Vietnam's Remarkable Progress on Poverty Reduction and the Emerging Challenges", The Work Bank.

Appendix

Figure A.1. Lorenz curve of Kinh households

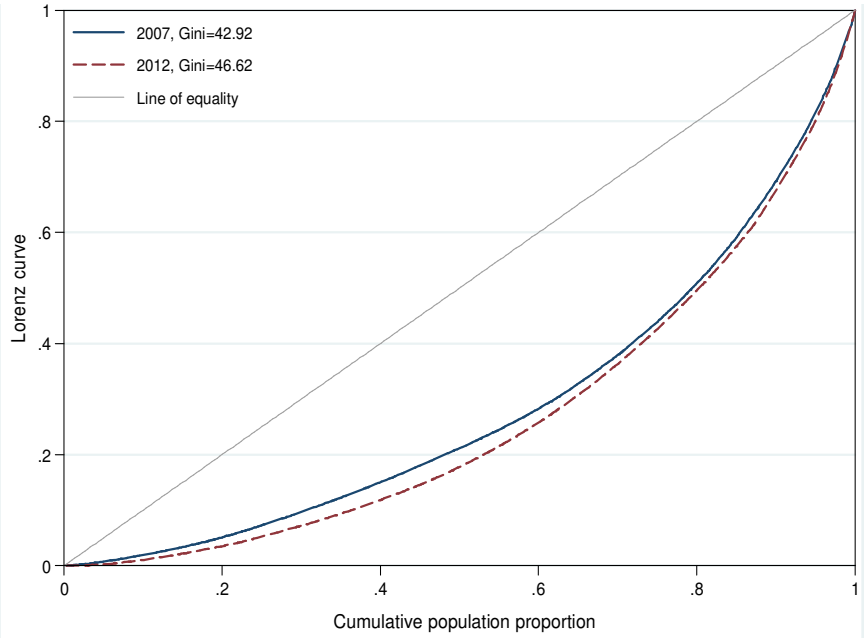


Figure A.2. Lorenz curve of ethnic minority households

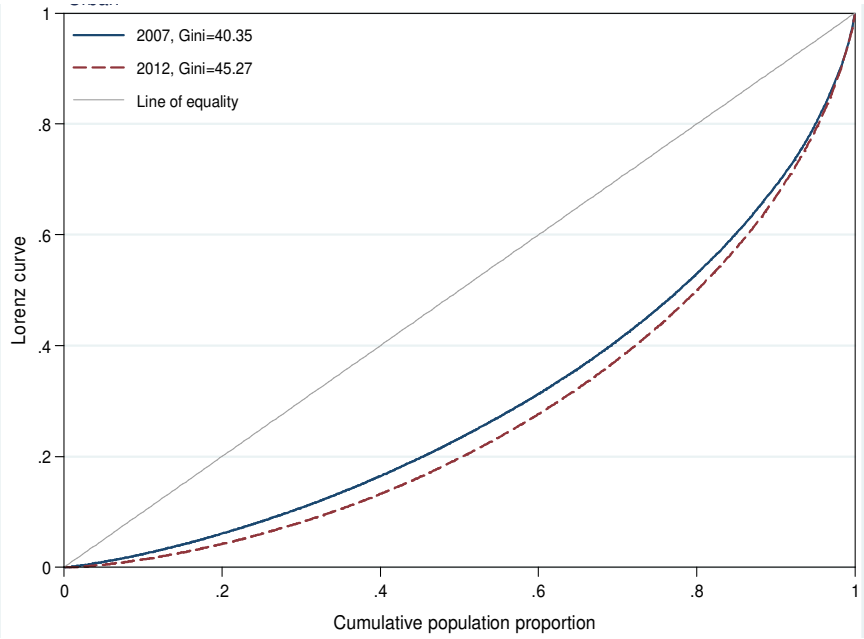


Figure A.3. Poverty incidence curve of Kinh households

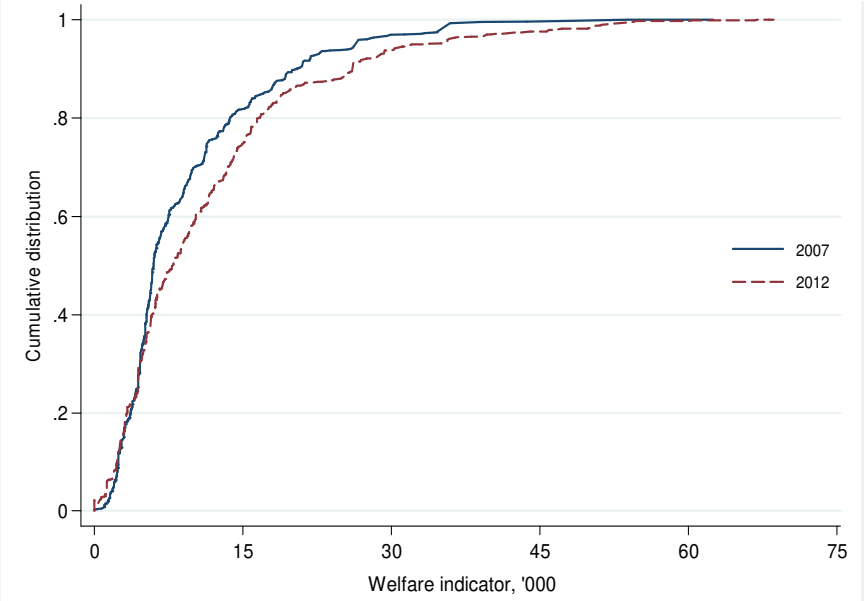


Figure A.4. Poverty incidence curve of ethnic minority households

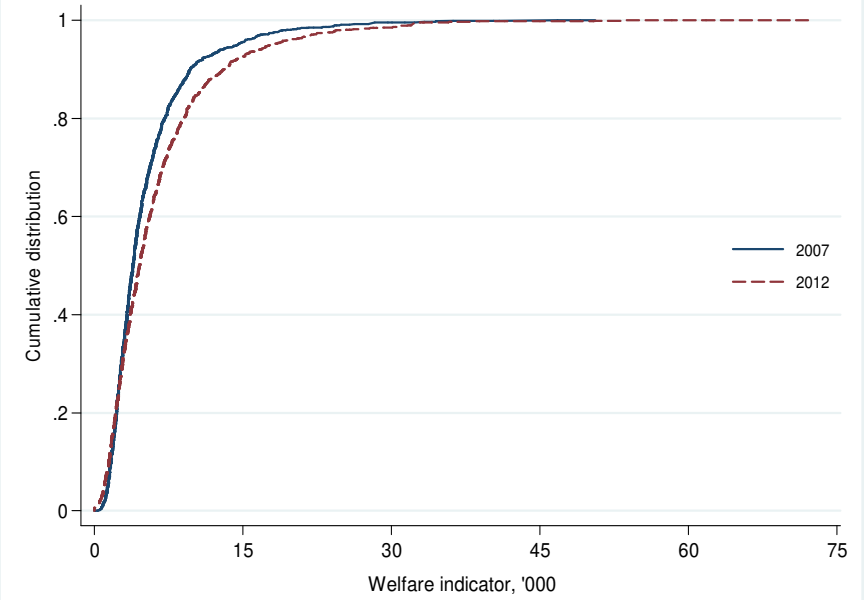


Figure A.5. Poverty deficit curve of Kinh households

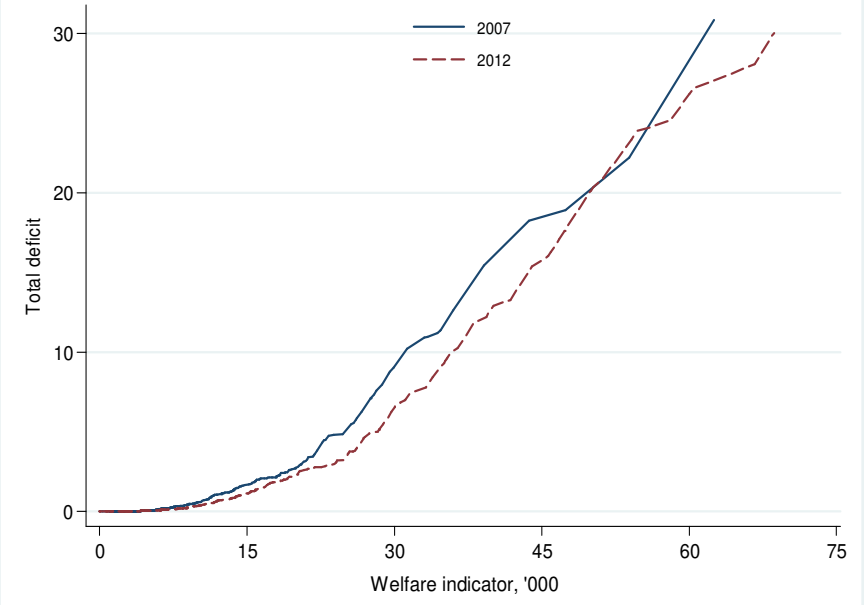


Figure A.6. Poverty deficit curve of ethnic minority households

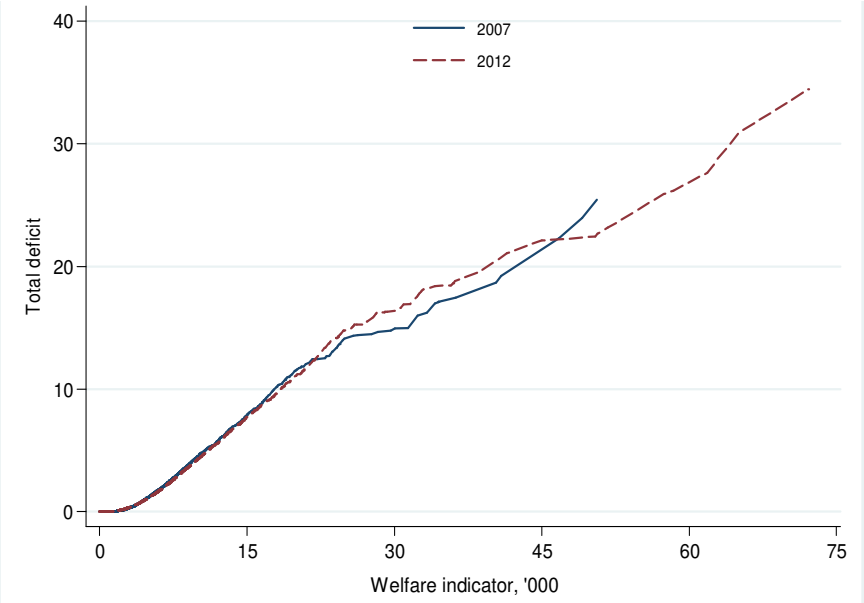


Figure A.7. Poverty severity curve of Kinh households

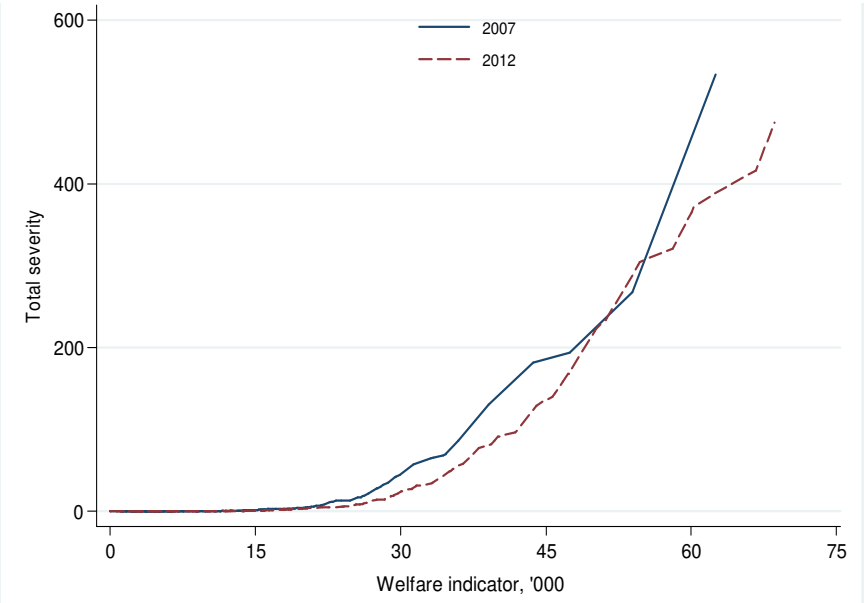


Figure A.8. Poverty severity curve of ethnic minority households

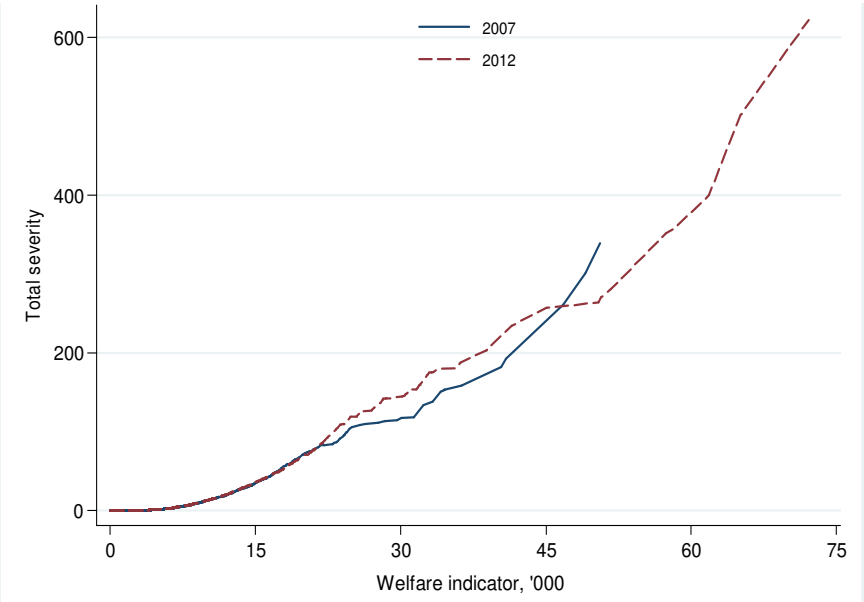


Table A.1. Multinomial logit regression of poverty dynamic (base outcome of the dependent variable is 'Persistently non-poor: Non-poor in both 2007 and 2012')

Explanatory variables	Dependent variable		
	Persistently poor: Poor in both 2007 and 2012	*Escaped poverty:* Poor in 2007, and non-poor in 2012	*Fell into poverty:* Non-poor in 2007, and poor in 2012
Age head	-0.1420***	-0.0808*	-0.0556
	(0.0447)	(0.0444)	(0.0390)
Age head squared	0.0015***	0.0010*	0.0006
	(0.0005)	(0.0005)	(0.0004)
Head is male	0.7197**	0.2758	0.1227
	(0.3613)	(0.3434)	(0.2679)
Schooling years of head	-0.2300***	-0.1294***	-0.1208***
	(0.0259)	(0.0252)	(0.0308)
Kinh	Omitted		
Tày	1.0832***	0.6190*	0.8929**
	(0.4169)	(0.3698)	(0.3637)
Thái	0.8558**	0.3427	1.3000***
	(0.3892)	(0.3481)	(0.3796)
Mường	0.9476**	-0.0146	0.8503**
	(0.3852)	(0.3452)	(0.4006)
Nùng	0.6098	0.5122	0.2889
	(0.4206)	(0.3930)	(0.5126)
H'Mông	1.2289**	1.5111***	1.1303***
	(0.5038)	(0.4311)	(0.4011)
Dao	0.6712	0.5872	1.2538***
	(0.4584)	(0.3915)	(0.4267)
Other ethnic minorities	0.4773	0.6862**	0.3051
	(0.5389)	(0.3189)	(0.3912)
North	Omitted		
Central	-0.2605	-0.2759	0.6579**
	(0.3121)	(0.3131)	(0.3066)
South	-0.2236	-0.4287	0.7003*
	(0.5335)	(0.4053)	(0.3899)
Household size	0.2382***	0.1207*	-0.0360
	(0.0545)	(0.0672)	(0.0698)
Proportion of children	1.6937***	0.5503*	-0.0990
	(0.6189)	(0.3211)	(0.4835)
Proportion of elderly	1.0066*	-0.6627	-0.0187
	(0.6109)	(0.6299)	(0.6388)
Proportion of female members	0.3059	0.0905	-0.4406
	(0.5316)	(0.4874)	(0.4829)
Per capita living area (m2)	-0.0587***	-0.0480***	-0.0088
	(0.0157)	(0.0154)	(0.0103)
Per capita annual crop land (ha)	-0.8463***	-0.7824***	-0.0721
	(0.1607)	(0.1404)	(0.0983)

Explanatory variables	Dependent variable		
	Persistently poor: Poor in both 2007 and 2012	*Escaped poverty:* Poor in 2007, and non-poor in 2012	*Fell into poverty:* Non-poor in 2007, and poor in 2012
Per capita perenial crop land (ha)	-0.0970	-0.0551	-0.1050*
	(0.0727)	(0.0620)	(0.0564)
Poverty rate of commune	0.0232***	0.0136**	0.0027
	(0.0074)	(0.0065)	(0.0066)
Receiving remittances	-0.8108***	-0.5328*	-0.1706
	(0.2556)	(0.2823)	(0.2515)
Receiving allowances	0.1547	-0.3491	-0.1250
	(0.2558)	(0.2561)	(0.2356)
Borrowing from VBSP bank	0.1945	0.1842	0.4149*
	(0.2350)	(0.2009)	(0.2172)
Constant	1.7979	1.5729	0.5651
	(1.3903)	(1.2873)	(1.0865)
Observations	3,515	3,515	3,515

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1