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ESTIMATING THE DIFFERENCES OF POVERTY BY GEOGRAPHIC AREA ACCORDING TO THE MULTI-DIMENSIONAL POVERTY APPROACH: A CASE STUDY IN NGHE AN PROVINCE, VIETNAM

Nguyen Thi Trang Thanh[1*], Tran Thi Tuyen[1],
Truong Thi Nhu Nguyet[2] and Pham Vu Chung[1]
[1]*Geography Department, College of Education, Vinh University*
[2]*Faculty of Basic Science, Trade Union University*

Abstract. Multidimensional poverty is measured by income and lack of access to basic social services. This study uses the multidimensional poverty index (MPI) according to the Alkire and Foster method (2011) and the dimensions of health, education, housing, clean water and sanitation, and access to information to analyze the current situation of multidimensional poverty in Nghe An province. The results show that, in the period 2016 - 2019, the poverty rate in Nghe An decreased rapidly, but the intensity of poverty decreased slowly. The rate of deficiency of some indicators such as school attendance among children and assets for accessing information tends to increase. Households in remote areas and ethnic minority households have a high rate of lack of basic social services. The division is also evident in the highland and lowland districts, between the Northwest and the Southwest. From that situation, the study recommends several *solutions to reduce poverty in the mountainous area of Nghe An.*

Keywords: Multidimensional poverty, poor households, Nghe An province.

1. Introduction

Poverty is always a top concern and realistic problem of all countries in the world, especially in developing countries [1,2]. Poverty reduction is the first of 17 sustainable development goals of the United Nations to 2030 that was approved by 193 countries in September 2015 [3]. Poverty is a part of the population without living conditions such as clothing, shelter, sanitation, health, education, travel, and the right to participate in community decisions [4]. In recent decades, countries and the world have committed to poverty reduction that towards the goal of reducing global poverty. The mobilization of resources and proposing policies to develop livelihoods for the poor are focused. In developing countries, although economic growth over the years has shown good results, its impact on the poor is limited. Montek S. Ahluwalia et al have simulated policy in developing countries and pointed out that achieving a significant level of poverty reduction requires a combination of policies to accelerate the growth of poor countries, distributing the benefits of growth more equitably and reducing population growth [5].

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Contact Nguyen Thi Trang Thanh, e-mail address: thanhntt@vinhuni.edu.vn

Poverty varies widely across regions, even within the same country. In India, Bidyadhar Dehury and Sanjay K. Mohanty have assessed the differentiation of poverty in 82 natural regions with indicators of multidimensional deprivation. Since then, the authors have proposed regional goal-based solutions to reduce poverty and inequality in India [6]. Yanhua Liu has focused on geography, the disadvantage of natural conditions in the multidimensional poverty study in China, which has contributed to suggesting a policy of sustainable poverty reduction [7].

The research approach and the accuracy and reliability of the poverty measurement method have made significant progress. Poverty was primarily measured in money metric form, either from household income or consumption expenditure [8]. The poverty approach from unidimensional poverty has shifted to multidimensional poverty from "capability and entitlement poverty" concepts [9,10]. Thereafter, both studies and facts recognize that poverty is not only an economic deprivation but also a social dimension. In 1997, the United Nations Development Program (UNDP) mentioned multidimensional poverty in its Human Development Report [11]. To assess poverty, Alkire, S., and J. Foster proposed 10 indicators measuring multidimensional poverty, which represent three dimensions of education, health, and standard of living [12, 13]. They are divided into indicators: adult education level, children's attendance status; child nutrition and mortality; cooking fuels, electricity, clean water, sanitation, housing, and property ownership. The weight of each dimension is 1/3, divided equally among the indicators. The multidimensional poverty index (MPI) shows the proportion of multi-depth poor households in poverty. The higher the MPI, the higher the degree of multidimensional poverty (AF method). UNDP (2010) used the Multidimensional Poverty Index (MPI) to measure the poverty of 104 countries in the Human Development Report, 2010 [14].

In Vietnam, poverty reduction is always the top target in the national socio-economic development strategy. Along with economic growth, poverty reduction in Vietnam has made remarkable achievements, with the poverty rate falling sharply from 57% in 1990 to 13.5% in 2014. However, the sustainability of poverty reduction in Vietnam is believed to be not assured [15]. Since 2015, the Government of Vietnam has issued multidimensional poverty standards applicable to the period 2016 - 2020, marking an important step in the transition from unidimensional poverty measurement to multidimensional measurement of Vietnam [16]. Accordingly, researchers on poverty in Vietnam also approached multidimensional poverty from 2014 to the present. The AF method has been applied to multidimensional poverty analysis in households with migrants in Vietnam by Nguyen Thi Phuong Thao. The result is a multidimensional poverty rate twice as high as poverty based on income/expenditure. The proportion of households falling back into poverty and falling into multidimensional poverty is higher than that of migrant households. Multi-dimensional poverty focuses on vulnerable groups such as migrant households in disadvantaged, remote, and isolated areas, ethnic minorities, the elderly, and the unidimensional poor tends to increase. The deprivation in living conditions contributes the most to the overall multidimensional poverty index while the lack of information access contributes the least to the overall multidimensional poverty index [17]. Research on the relationship between multidimensional poverty (MPI) and human development (HDI) shows that there are similarities between these two subjects in the Northwest provinces of Vietnam (including Dien Bien, Lai Chau, and Son

La). The main deprivation dimensions include education, quality and sanitation, and the environment due to geographical, linguistic, and cultural barriers. The depth of the gap in these indicators will be a major challenge to multidimensional poverty reduction in particular and human development in these localities in general [18]. The poverty of each region is also different as evidenced in mountainous areas of Vietnam, depending on the production characteristics of each ethnic minority [19]. Although research on poverty by scientists and poverty reduction policies of the Vietnamese government is quite complete, showing the importance of this issue. However, to have a sustainable poverty reduction policy, it is necessary to study the roots of poverty on a small scale, and find out the causes of poverty in each region, which has large differences between rural and urban, plains and mountains. Based on an analysis of the current situation, the article focuses on finding the differences in the causes of poverty in the plains and mountainous areas. This aim is to suggest sustainable and appropriate poverty reduction policies for each target group in Vietnam, illustrated with a case study in Nghe An province.

2. Content

2.1. Data and Methodology

2.1.1. Data

The paper uses poverty survey data of Nghe An province in 2016 and 2019 by the Department of Labor, War invalids and Social Affairs of Nghe An province, including indicators of income and deprivation of basic social services (housing, health, education, clean water, sanitation, information). On that basis, the research team surveyed 6 communes in 6 mountainous and coastal districts of Nghe An (Tuong Duong, Ky Son, Que Phong, Dien Chau, Quynh Luu, and Hoang Mai town) to clarify the current status and causes of poverty according to geographical areas.

2.1.2. Methodology

The study uses the Alkire-Foster Multidimensional Poverty Index (MPI) (2011) and the multi-dimensional poverty standard of Vietnam in the period 2016-2020.

a. The Multi-dimensional Poverty Index (MPI)

The Alkire and Foster method (2011) analyzes deprivation levels in the overall multidimensional poverty index and dimensions. The analysis of this gap allows understanding the causes of multidimensional poverty, as well as showing which indicators and dimensions of poverty will lead to greater poverty reduction.

MPI is calculated as follows: The headcount ratio is the proportion of the population who are multidimensional poor. The headcount ratio is computed as:

$H=q/n$

Where, q is the number of multidimensional poor, n is the total population.

The intensity of poverty (A) or the breadth of deprivation captures the average weighted count of deprivations experienced by the multidimensional poor. The intensity of poverty (A) is computed as

$A=\Sigma\, c/q$

Where c is the total weighted deprivations of poor households. The multidimensional poverty index (MPI) is the product of the two measures, headcount ratio (H) and intensity

of poverty (A). The headcount ratio is the share of multidimensional poor in the total population. The intensity of poverty is the average value of the weighted deprivations experienced by the multidimensional poor at a time. The MPI is computed as:

MPI= H*A

The MPI shows the proportion of households living in multidimensional poverty adjusted for intensity of poverty. The higher the MPI, the higher the multidimensional poverty level. The MPI not only reflects multidimensional poverty but also reflects the degree of deprivation of the multidimensional poor [13].

b. The multi-dimensional poverty standard of Vietnam in the period 2016 - 2020

In Vietnam, before 2015, the measure of national poverty was based on the income or expenditure of the population. However, the unidimensional poverty approach reveals many limitations. In 2015, the Government of Vietnam adopted a multidimensional approach to poverty measurement. In addition to the criteria of income, multidimensional poverty is measured by the extent of the lack of access to basic social services. Specifically, poor households are identified as follows:

Income criteria

The poverty line in Vietnam since 2016 is 700,000 VND/ person/month in rural areas and 900,000 VND/ person/ month in urban areas [16].

- Poor households in rural areas are households that satisfy one of the following two criteria:

+ Have income per capita/month from and below 700,000 VND Have an average income per capita/month of 700,000 VND or less;

+ Having an average monthly income of over 700,000 VND to 1,000,000 VND and having a shortage of 03 indicators measuring the degree of lack of access to basic social services or more.

- Poor households in urban areas are those that satisfy one of the following two criteria:

+ Have an average income per capita/month of 900,000 VND or less;

+ Having an average monthly income of over 900,000 VND to 1,300,000 VND and having a shortage of 03 indicators measuring the degree of lack of access to basic social services or more.

c. Criteria for the lack of access to basic social services

Basic social services include 5 dimensions: education; medical; housing; clean water and sanitation; and information. The indicators to measure the lack of basic social services include 10 indicators: adult education; the child's school attendance; access to medical services; Health Insurance; housing quality; housing area; drinking water and sanitation; and using telecommunications services and properties for access to information. In Vietnam, According to the Ministry of Labor, War Invalids and Social Affairs, indicator weight and dimensional weights are calculated based on equality, with a total score of 100 (each dimension has 20 points, and each indicator is 10 points) [20].

Based on Vietnam's multidimensional poverty standard for the period 2016-2020, to calculate the multidimensional poverty index (MPI) by the AF method, we weight each deprivation indicator with a score of 0.1. and the total score of 10 indicators is 1 with the indicators presented in Table 1.

Table 1. Dimensions and indicators for the use of multidimensional poverty measures for households in Vietnam [16]

Dimensions	Indicators	Description of Indicators	Weights
Education	Adult education level	At least one adult member (15 years and above) in the household has not graduated from lower secondary school and not currently attending school.	0.1
	School attendance of children	At least one child of school-going age (5- 14 years) in the household currently not attending school.	0.1
Health	Access to medical services	There is a member in the household who is sick but does not go for medical examination and treatment.	0.1
	Health Insurance	At least one member (6 years and above) in the household does not have any health insurance.	0.1
House	Housing quality	House is not semi-permanent or simple.	0.1
	Housing area per capita	Housing area per capita less than 8 m^2	0.1
Clean water and sanitation	Drinking water	The household does not have access to improved drinking water	0.1
	Sanitation	The household does not have access to improved sanitation.	0.1
Information	Using telecommunications services	A member of the household does not have access to telephone and internet.	0.1
	Property for access to information	The household does not have one of these assets: television, radio, computer; and cannot hear the radio system of commune/village.	0.1

Each household is considered to be in multidimensional poverty with an average income per capita/month of over 700,000 VND to 1,000,000 VND (in rural areas) or a monthly income per capita of over 900,000 VND to 1,300,000 VND (urban area) and lack of 03 or more indicators of access to basic social services. The MPI multidimensional poverty index will range from 0 to 1.

2.2. Results

2.2.1. Poverty in Nghe An Province

In the period 2016-2019, the number of poor households in Nghe An province decreased rapidly. In 2016, the total number of poor households in the province was 80168 households; the headcount ratio accounted for 9.94% of the total number of

households in the province. In 2019, the number of poor households will be reduced to 41041; the headcount ratio is 4.11%. However, the province's poverty rate is higher than the national average (the national headcount ratio is 3.9%). Poor households are concentrated mainly in mountainous areas, of which the proportion of poor households that are ethnic minorities accounts for 11.2%, 2.7 times higher than the province's average [21,22].

In the period 2016 - 2019, the intensity of poverty decreased by only 1.5% (from 24.2% a year to 22.7%) while the headcount ratio of households decreased by 5.83%. The MPI of Nghe An also decreased from 0.024 to 0.009 in the period 2016 - 2019. Thus, the rate of poor households lacking social services decreased slowly.

Regarding the lack of basic social services, poor households lack clean water and sanitation, and housing accounts for the highest proportion. In 2019, the total number of households having a shortage of drinking water and sanitation was 31017 households, accounting for 75.6% of the poor households, (the number of households lacking sanitation accounts for 45.0%, and the number of households lacking in clean water is 30.6 % of total poor households). The total number of households lacking housing is 29553 households, accounting for 72.0% of the total number of poor households. In particular, the proportion of households lacking housing quality is higher than the housing area per capital (36.5%).

Among the remaining indicators, the health deficiency index accounts for a high proportion (34.4%); followed by access to information 23.2% and the lowest rate of gaps in education, accounting for 20.3% of all poor households.

The rate of poor households lacking health and education tends to increase. In 2019, the health insurance rate was 20.5%, an increase of 6.5% compared to 2016. The rate of access to medical services also increased by 8.8% compared to 2016. The rate of shortage in school attendance of children increased from 4.0% in 2016 to 7.0% in 2019.

Table 2. The proportion of poor households lacking social services in Nghe An in 2016 and 2019 [21, 22]

2016	**Health**		**Education**		**House**		**Clean water and sanitation**		**Information**	
	18.2		23.2		79.4		91.4		29.5	
	Access to medical services	Health Insurance	Adult education level	School attendance of children	Housing quality	Housing area per capita	Drinking water	Sanitation	Using telecommunications services	Property for information access
	5.2	13.0	19.2	4.0	43.1	36.3	35.8	55.6	14.6	14.9
2019	**Health**		**Education**		**House**		**Clean water and sanitation**		**Information**	
	34.4		20.3		72.0		75.6		23.2	
	Access to medical services	Health Insurance	Adult education level	School attendance of children	Housing quality	Housing area per capita	Drinking water	Sanitation	Using telecommunications services	Property for information access
	14.0	20.4	13.3	7.0	36.5	35.5	30.6	45.0	11.8	11.4

Thus, in Nghe An, the rate of poor households lacking income accounts for 98% of the total number of multidimensionally poor households; Next are environmental and housing indicators; the lowest is the indicator of access to information and education.

2.2.2. Multidimensional poverty differentiation according to geographical areas in Nghe An

The poverty differentiation is dependent on topography. Mountainous districts have a high rate of poor households and the multidimensional poverty index is also higher than plain and coastal districts.

In 2019, the headcount ratio in the mountainous region of Nghe An was 11.22%, decreasing by 9.43% compared to 2016, but still higher than that of the coastal plain (the coastal plain is only 1.37%). However, the intensity of poverty and multidimensional poverty index of the mountainous regions decreased more rapidly than in the plain and coastal districts. The multidimensional poverty index in the mountainous areas decreased from 0.054 in 2016 to 0.026 in 2019.

The mountainous districts have a high headcount ratio and multidimensional poverty rate. In 2019, Ky Son, Que Phong, Quy Chau, and Tuong Duong districts have headcount ratios accounting for 24 - 46% of the total number of households. Ky Son is the district with the highest poverty rate in the province. In 2019, the district headcount ratio is 46% and the multidimensional poverty rate is 0.091. The reason is that Ky Son district is located in the highest place in Nghe An, with difficult natural conditions, Ethnic minorities account for 95.9% of the district's population. Que Phong district has the second-highest headcount ratio in the province. In 2019, the district headcount ratio was 26.5% and MPI was 0.072. Que Phong district is located in the northwestern part of Nghe An, with ethnic minorities accounting for over 90% of the population.

Table 3. Headcount ratio, Intensity of poverty and MPI of Nghe An province in 2016, 2019

Years	**2016**			**2019**			**MPI 2019 - 2016**
	H (%)	***A (%)***	***MPI***	***H (%)***	***A (%)***	***MPI***	
Mountainous area	20.65	25.9	0.054	11.22	21.89	0.026	- 0.028
Coastal and delta areas	3.90	18.9	0.007	1.37	22.76	0.003	- 0.004
Nghe An province	**9.94**	**24.2**	**0.024**	**4.11**	**22.55**	**0.009**	**- 0.015**

[Calculate data from 21, 22]

The rate of poor households in the Coastal and delta areas decreases and is lower than the average of the whole province. In 2019, the headcount ratio in the Coastal and delta areas was 1.37%. In the period 2016 - 2019, the multidimensional poverty index of the Coastal and delta regions decreased from 0.007 to 0.003. There is a multidimensional poverty difference between urban and rural areas. Cities and towns have the lowest headcount ratio. The rate of poor households in Vinh city only accounts for 0.26% of the total number of households; Cua Lo town is 0.97%. However, Hoang Mai town was just established in 2013, so the headcount ratio is high (4.19%). Do Luong, Hung Nguyen, and Yen Thanh districts have high headcount ratios. The district with the highest

multidimensional poverty index is Hung Nguyen. In 2019, Hung Nguyen's MPI is 0.007. Do Luong district and Hoang Mai town are 0.005.

Figure 1. Multidimensional poverty index of Nghe An province in 2019

Most poor households in Nghe An have a lack of income. In 2019, the total number of poor households in the mountainous region of Nghe An is 33 548 households. The number of income-poor households in mountainous areas is 33236 households, accounting for 99.1% of the total number of poor households. In 2019, the delta region had 7364 households with income deprivation, accounting for 98.3% of the total number of poor households in the region.

In mountainous areas, the largest rates of deprivation households are clean water, sanitation, and housing. Although the proportion of poor households lacking clean water and sanitation significantly decreased between 2016 and 2019, the rate of water shortage and sanitation still accounts for 80.5% (47% of households lack sanitation and 33.5% of households lack clean water). In 2019, the proportion of households lacking housing was 77.5%. Which, the shortage in housing quality is 39.3% and the housing area per capita is 38.2% of the total poor households. Indicators of lack of education and access to information are lowest in all indicators. In 2019, the education gap is 20% and access to information is 23.1%.

The lack of clean water and sanitation in most mountainous districts is high. The districts with the highest lack of clean water and sanitation are Quy Chau, Que Phong, Con Cuong, Nghia Dan,… Meanwhile, the education and health deprivation rates of the mountainous districts are lower. In 2019, the rate of education deprivation in the

mountainous area was 20% and the healthcare sector was 26.5%. Health and education deprivation rates are low in the mountainous districts due to Vietnam's supportive policies for mountainous regions, and ethnic minorities.

In the period 2016 - 2019, the rate of shortage of social services in mountainous areas tends to decrease. Indicators of clean water and sanitation, housing quality decreases fastest. The clean water shortage rate decreased from 41.5% in 2016 to 33.5% in 2019; the rate of sanitation deficit decreased from 62.2% to 47.0%. However, the three indicators that tend to increase are access to medical services, health insurance and school attendance of children. In the period 2016 - 2019, the access to medical services increased from 6.5% to 14.3%, the health insurance gap increased from 6.0% to 12.2% and the school attendance rate of children increased from 3.9% to 5.6%.

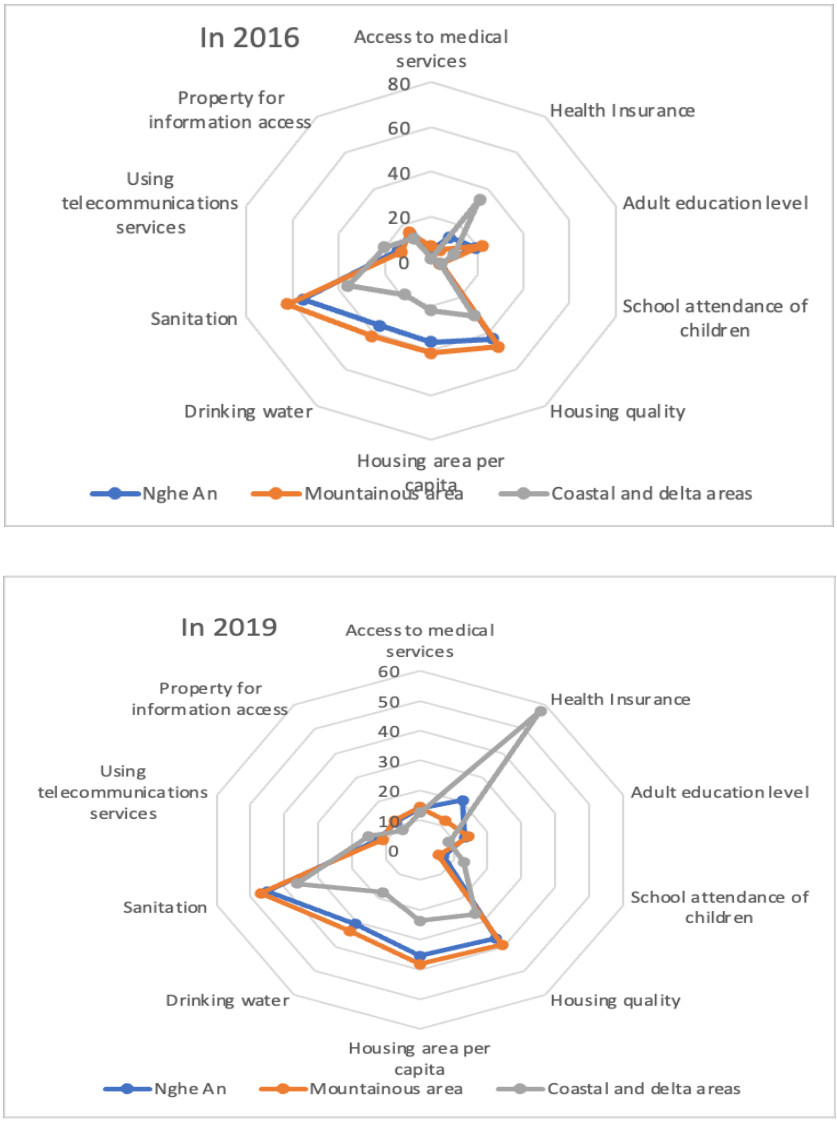

Figure 2. The rate of lack of basic social services in poor households in Nghe An by region in 2016 and 2019 (%)

In the coastal and delta areas, the health deprivation rate is highest. In 2019, the rate of health deprivation of poor households accounts for 70.1% of the total number of poor

households in the coastal and delta areas, of which lack of health insurance is 57.6% and access to medical services is 12.5%; lack of clean water and sanitation accounts for 53.9%; The housing shortage accounts for 50.2% of the total poor households. Districts with a high rate of health insurance shortage are Nam Dan district (87.5%), Yen Thanh district (79.9%), Hoang Mai town (79.7%),... The highest level of access to medical services is Do Luong district, accounting for 43.2%.

In the period 2016 - 2019, the proportion of gaps in housing, clean water and sanitation, and access to information decreased in coastal and delta districts. However, indicators of health insurance, access to medical services and school attendance of children tend to increase. The rate of shortage of insurance increased from 33.9% in 2016 to 57.6% in 2019; Access to medical services increased from 1.1% to 12.5% and school attendance of children increased from 4.3% to 12.9%.

Table 4. The rate of gaps in income and basic social services of poor households in Nghe An province by district/town/city in 2019 [21, 22]

District/ town/city	Income	Access to medical services	Health Insurance	Adult education level	School attendance of children	Housing quality	Housing area per capita	Drinking water	Sanitation	Using telecommunications services	Property for information access
Coastal and delta areas	***98.3***	***12.5***	***57.6***	***8.6***	***12.9***	***26.5***	***23.7***	***17.6***	***36.3***	***15.1***	***8.2***
Vinh City	99.0	6.7	66.2	4.3	2.4	17.1	16.2	0.48	11.0	39.1	-
Cua Lo town	100.0	0.8	29.9	1.6	-	24.4	16.5	-	20.5	5.5	0.8
Nam Dan district	97.7	10.2	87.5	12.0	10.9	18.0	20.3	6.5	17.7	10.1	8.8
Hung Nguyen district	94.9	12.3	70.1	13.0	19.2	44.2	20.7	34.4	46.7	34.0	21.6
Nghi Loc district	98.3	10.2	58.9	5.3	11.3	38.5	20.1	26.2	43.5	23.2	5.5
Do Luong district	100.0	43.2	15.3	15.6	37.5	12.3	20.4	19.5	35.2	2.1	1.8
Dien Chau district	100.0	3.8	47.2	6.3	5.2	34.8	20.4	21.4	37.8	25.6	11.4
Yen Thanh district	99.5	0.5	79.9	4.1	2.3	19.0	26.6	8.9	34.9	11.6	7.0
Quynh Luu district	98.0	6.9	63.2	6.4	10.0	34.2	34.3	27.2	44.6	16.2	6.7
Hoang Mai town	92.9	8.8	79.7	10.9	3.8	39.1	31.4	4.5	42.1	18.1	15.0
Mountainous area	***99.1***	***14.3***	***12.2***	***14.4***	***5.6***	***39.3***	***38.2***	***33.5***	***47.0***	***11.0***	***12.1***
Thai Hoa town	100.0	7.5	80.5	7.1	3.7	22.8	13.7	2.5	32.4	11.2	7.5
Thanh Chuong district	98.7	2.3	23.8	7.9	2.3	18.6	24.9	9.6	42.7	3.9	3.9
Anh Son district	97.2	9.7	39.5	5.7	8.2	42.2	48.0	29.8	55.6	21.3	17.7
Tan Ky district	99.1	4.8	18.4	15.3	14.1	22.7	27.7	20.3	27.9	14.3	13.9
Nghia Dan district	98.1	1.9	23.1	5.8	1.3	36.6	34.4	41.3	76.5	13.6	4.5
Quy Hop district	98.2	3.0	5.1	12.5	2.5	49.4	57.8	65.2	69.6	11.7	14.6

Quy Chau district	97.0	0.3	1.0	7.8	0.4	53.8	36.1	55.7	76.9	5.9	7.9
Que Phong district	100.0	0.0	-	34.6	0.9	53.5	34.9	41.7	73.4	19.8	14.6
Con Cuong district	98.9	0.2	4.9	6.5	23.0	52.1	42.8	59.1	56.5	23.5	19.2
Tuong Duong district	100.0	0.6	0.5	10.6	1.5	44.0	39.3	4.5	42.7	11.8	21.2
Ky Son district	100.0	58.2	24.8	17.9	7.9	22.3	34.9	18.8	31.6	2.8	6.7
Nghe An province	98.9	**14.0**	**20.5**	**13.3**	**7.0**	**36.5**	**35.5**	**30.6**	**50.2**	**11.8**	**11.4**

2.2.3. Causes of poverty

According to the survey results on the causes of poverty, the main causes of poverty for households in Nghe An are lack of capital for production, lack of labor, and lack of productive land. In 2019, the number of poor households lacking capital for production in Nghe An province was 18058 households, accounting for 44.0% of the total number of poor households; The number of poor households lacking skills and unskilled is 11368 households, accounting for 27.7% of the total number of poor households and lacking productive land accounts for 25.3% of the total number of poor households; Next is the lack of production materials, not knowing how to do business and being lazy in labor [16].

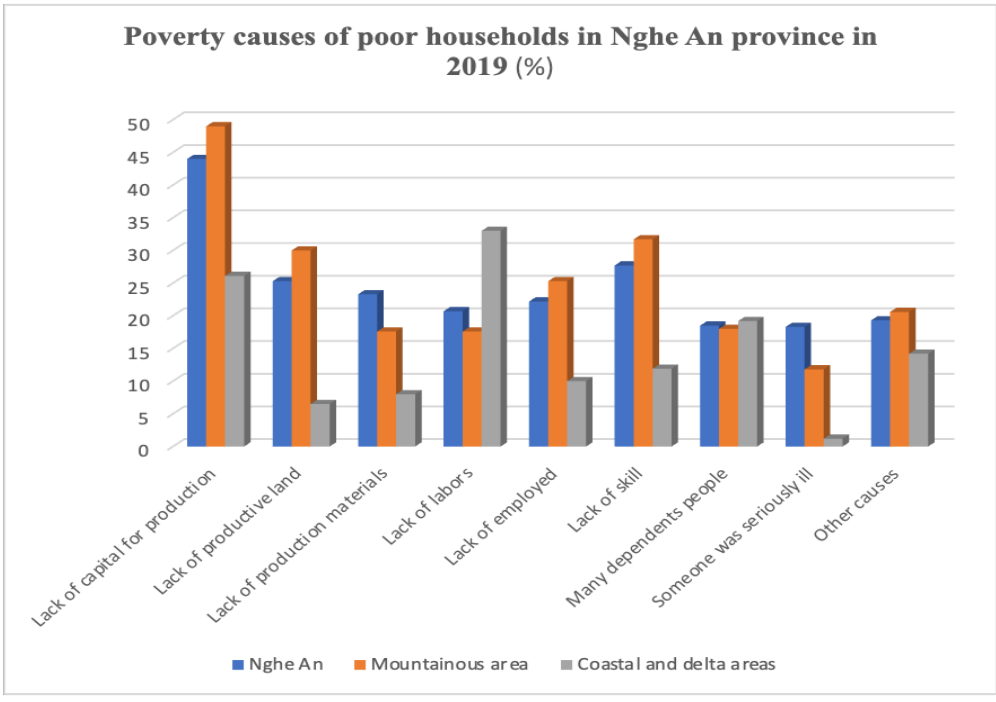

Figure 3. Causes of poverty in Nghe An province in 2019

Currently, households in Nghe An in general and poor households in particular have a great need for capital to invest in production. The State has many incentives for the poor to borrow money. However, the loan amount is small, the loan period is short, so the efficiency of capital use is not high. Many households use the loan for family expenses, building houses. Therefore, lack of capital for production or ineffective use of capital is one of the main causes of poverty in Nghe An.

In general, agricultural land is very important for households in Nghe An. Many poor households in some mountainous and coastal districts still lack agricultural land. Causes of land shortages include: Population growth, household separation, urbanization, hydropower construction, and natural disasters,...

In mountainous areas, the main causes of poverty are lack of capital for production, lack of labor skills (no training) and lack of agricultural land.

Agriculture is the main economic sector in mountainous areas. Agricultural production is unstable due to the effects of natural disasters, drought, floods, ... The mountainous region has an unfavorable geographical position, the terrain is complicated, the infrastructure is difficult, …

The majority of ethnic minorities have low educational attainment, production practices are backward and are heavily self-sufficient. Poverty due to low education, lack of knowledge and experience in production. Low levels of education significantly influence decisions related to education, childbirth, and parenting. Survey data shows that 100% of poor household heads are people who have not graduated from high school, of which only over 50% of households have just graduated primary school.

It is very difficult for poor households to access production support services and new farming methods. Currently, many households in the area have been supported with investment capital for production (planting fruit trees, raising cattle,...). However, due to lack of knowledge and experience in production, the quality of the product is not high and easy to face risks. On the other hand, the poor do not have accumulated capital, so the poor's ability to cope and overcome risks is low.

In the delta districts, the main cause of poverty is the lack of labor, lack of capital for production, and many dependent children. Due to the low income in the locality, most young workers find jobs in urban areas and industrial zones. In coastal areas, the birth rate is high in poor families, so the number of dependents is high.

2.2.4. Poverty reduction policies have been implemented in Nghe An

Along with the State's policies, Nghe An has implemented many policies and measures to reduce poverty such as the project of preferential credit for poor households to develop production; issuing health insurance cards for the poor; support for building houses for poor households; supporting the construction of infrastructure for communes with extreme difficulties; fostering, training to improve the qualifications of the staff, vocational training for people,...

Among the policies, 3 policies have the greatest impact on poverty reduction, they are: credit support policies for poor households, and policies to develop agricultural and forestry production associated with processing and consumption. products and policies for vocational training and job creation for the poor. In particular, policies to support infrastructure, and health insurance have helped mountainous districts effectively reduce poverty.

However, many poverty reduction policies are short-term and have not created a close linkage; resources for implementing poverty reduction are still spread, not focusing on solving the most important goals; Investment sources from the provincial and district budgets are limited,... Some policies to directly support the poor (such as money, rice, ...) have not encouraged the poor to try to escape poverty.

Many policies are usually only supportive, not development investment to exploit the strengths of each region. Most supports are evenly distributed to poor households, there is no classification by the ability of each household and not suitable for each geographic region.

2.2.5. Suggest some solutions to reduce poverty in Nghe An province

To be able to reduce poverty sustainably, policies need to focus on three groups: policies for economic development for poor households; policies to facilitate poor households to access social services; and policies to raise awareness and capacity of the poor. Policies and solutions should be geographically specific and relevant to the capacity of poor households.

Policies to support poor households need to be changed. Funding support should not be divided equally among poor households, leading to less investment and inefficient production. Poor households should be divided into: chronically poor households (poor households with no workforce due to old age or long-term illness, ...); poor households have limited potential (poor households with labor, but low educational attainment, lazy working, ...), and potentially poor households (poor households with labor, education but lack production materials, lack of capital for production or lack of skills). The government needs to find a stable source of funding to support chronically poor households. Investments need to be concentrated on the poor potential households because they are more likely to escape poverty. When these poor households get out of poverty, they will transfer their investment capital to the poor with limited potential for investment in production. Household groups need to be established for production cooperation, exchange of experiences, and production together.

a. Solutions for mountainous areas

- Solutions for capacity building and vocational training for the poor

Organize vocational training courses to improve the people's intellectual level and increase employment possibilities for labors in mountainous areas.

Encourage poor households to participate in all steps of poverty reduction programs and projects. Promote propaganda for each poor household to consciously rise out of poverty, and avoid the thought of relying on state subsidies.

Transforming the economic structure towards the development of sustainable livelihoods to increase income for poor households. To step up the development of commodity-oriented agriculture to bring into play the strengths of the mountainous region. To form a value chain of agricultural products linking enterprises and households to find markets and to consume stable products for households.

- Policies –related solutions

Classification according to the ability of poor households to have policies to directly support the poor in the direction of gradually increasing “conditional assistance”, to promote the proactive rise of the poor. It is necessary to have long-term support policies, combined with charitable activities, to mobilize support from society for chronically poor households.

The Government should have mechanisms and policies to attract investment capital, especially capital of businesses, to form value chains in mountainous agricultural production. Continue to implement each agency and unit to support poor households, villages, and villages for a long time to help them escape poverty sustainably.

b. Solutions for coastal plains

Poverty reduction solutions for coastal communes include solutions to develop production and markets; vocational training solutions; solutions policies,... which focus on vocational training solutions to create jobs, and land policy.

In recent years, the province has organized many vocational training classes for workers. However, the possibility of getting a job after training is low due to inadequate vocational training. Therefore, it is necessary to investigate the labor market, and the labor demand of the enterprise; build a network of job placement centers, and employment services in commune,...

3. Conclusion

In recent years, despite the multidimensional poverty approach, the poverty reduction policies in Vietnam have been ineffective and unsustainable. The majority of poor households in Nghe An are income-poor, in addition, the lack of social services has profoundly impacted the poor, and their ability to escape poverty. This study has demonstrated that poverty has a distinct geographic variation. It has a large difference in the dimensions and causes of poverty between mountainous and plain, urban and rural areas. The mountainous areas with the greatest shortage of poor households are in terms of sanitation and housing, especially in the Ky Son and Que Phong districts. In addition to difficulties in clean water and sanitation, housing, and households still lack health care and education, such as indicators of access to healthcare services and adult education. Meanwhile, in the plain area, the most deprived dimension is the health care dimension, followed by clean water and sanitation. Vinh City and Cua Lo town are the two developed cities in Nghe An with the lowest MPI index and are markedly different from the rural highland districts. At the same time, the main causes of poverty in the mountainous areas are lack of capital for production, unskilled labor and lack of productive land, while for the plain, the main cause is lack of labor, lack of capital and many dependents.

Based on the results of the measurement of multidimensional poverty, policymakers should develop specific, targeted preliminary antipoverty policies for each region. Support programs in Nghe An province in poverty need to be based on the deprived dimensions by creating sustainable livelihoods for the poor. In mountainous areas, the policies should focus on improving the quality of the living environment as well as providing capital support and vocational training for laborers. In addition, it is necessary to renew the land policy to increase the farmers' ownership of natural capital on agricultural and forestry land. On the other hand, for the plain, the policies not only focus on supporting health care but also on mobilizing capital to invest in local production and job creation, increasing income. That led to expanding a strategy for local people to pursue an effective and sustainable breakthrough in poverty reduction.

Similar to some provinces with similar conditions in Vietnam, multidimensional poverty is distributed mainly in the coastal and mountainous areas, where most of the ethnic minorities live. Therefore, to deal with the complex issue involving so many dimensions such as poverty, it is necessary to have solutions that satisfy both the economy and society. In this study, the livelihoods of poor people are proposed by us to have many stimulate debate and reflection with the desire to improve performance in poverty

reduction. For each ethnic group, it is necessary to have solutions to exploit indigenous knowledge and development programs that are suitable to their production traditions.

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