Improving Measurement of Multidimensional Child Poverty in Vietnam

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Abstract

This study analyses multidimensional child poverty in Vietnam, using a child-specific measure of poverty that captures the dimensions of wellbeing that are most relevant to children. Vietnam has experienced a rapid and robust decrease in multidimensional child poverty in recent years. All the indicators of multidimensional child poverty decreased over the period 2010-2014, except for a slight increase in calorie consumption. Multi-dimensional child poverty in Viet Nam sharply decreased in the period 2010-2014, with the proportion of children deprived in more than one fifth of the dimensions falling more than 10 percentage points. Although multi-dimensional child poverty has declined in different groups of children, the poverty gap among some groups of children remains high. For instance, the multidimensional poverty rate of ethnic minority children was 52.3%, while the Kinh majority was 12.3% (at the cut-off level of one fifth) by 2014.

Keywords: multidimensional poverty, child poverty, living standard, Vietnam.

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1. Introduction

1.1. Research background

In recent years, Vietnam has achieved economic development, with an annual GDP growth rate of over 6% over the past decade, and has become an average income country since 2010. The proportion living below $ 3.1 per day (PPP 2011) fell from 69.3% to 12% between 2002 and 2014. However, the rate of poverty reduction was uneven across regions and population groups. Poverty remains high in extremely difficult areas and among ethnic minority groups and vulnerable groups such as children, women, migrants, etc. and in particularly difficult areas.

As a low-middle-income country, Vietnam is in the process of deepening integration into the international economy. The economic growth process contributes to poverty reduction, but also presents new risks, especially to children. Urban poverty is caused by rapid urbanization and migration from rural areas to cities. Climate change can increase the potential for dangers to people, especially poor and vulnerable children. Environmental pollution is also a challenge for Vietnam. Poverty reduction in Vietnam is not sustainable, and the likelihood of falling into poverty is high due to the uncertainty of the macroeconomy and the frequent effects of natural disasters. Although poverty measured by expenditure or income has declined significantly, access to basic social services and welfare such as clean water, hygienic latrines, or education and health care have not declined accordingly.

The new challenges to poverty reduction requires an appropriate and multidisciplinary approach of poverty analysis in which poverty is viewed as a multidimensional phenomenon, not just a monetary dimension. September 2015, the United Nations General Assembly approved the degree "Transforming the World: A 2030 Sustainable Development Agenda" with the Sustainable Development Goals (SDGs). The Millennium Development Goals - SDG 1 requires countries to reduce poverty both in monetary and in multidimensional dimensions, and especially for children. This confirms the importance of multi-dimensional child poverty measurement and monitoring at national and international levels.

Vietnam has been one of the pioneers in the world to initiate the development of a multi-dimensional child poverty measurement (MDCP) methodology specific to Viet Nam with technical support from UNICEF since 2006. Multidimensional children are determined based on the rights of children through eight basic dimensions of health, nutrition, education, housing, clean water/sanitation, child labor, recreation and social inclusion. Monetary and multidimensional child poverty have been analysed and monitored periodically using data

from the Multilateral Indicator Survey on Women and Children (MICS) and the Vietnam Household Living Standard Survey (VHLSS).

The Government of Vietnam has committed to the achievement of the Millennium Development Goals (MDGs) and issued a National Action Plan to implement the 2030 Agenda for Sustainable Development with 17 sustainable development goals for Vietnam by 2030 (VSDGs) includes 115 specific targets in 2017-2020 and 2021-2030 (Decision No. 622 / QĐ-TTg dated 10/5/2017). Recognizing the multidimensional nature of poverty, the Government of Viet Nam has developed a Master Plan to Transform from a Single-Dimensional Approach to Multidimensional in Poverty Measurement, 2016-2020 (Decision No. 1614 / QD-TTg dated 15/9/2015). Accordingly, multi-dimensional poverty measurement (MDP) is based on human rights expressed in five basic welfare dimensions of health, education, living conditions, housing and access to information. MDP has been used together with income poverty measurement to monitor poverty and identify poor beneficiaries for poverty alleviation programs and social security.

The Government of Vietnam set a very high target for poverty alleviation and social security for the whole population in the new socio-economic context. Thus consutruction and improvement of multidimensional poverty measurement in general and multidimensional child poverty in particular are very important and in line with the new development is needed in the coming period.

1.2. Rationale of multidimensional child poverty

Poverty in children has long been considered a multi-dimensional phenomenon since the development of children depends on both household income and non-monetary basic needs such as education and health care. Children are more at risk of poverty than adults and children are more likely to be affected by poverty than adults. The multidimensional nature of child poverty was recognised by the UN General Assembly in 2006 when it adopted for the first time a formal definition of child poverty (UNGA, 2006).[1] According to this definition, children living in poverty suffer from shortages in nutrition, water and sanitation, access to basic health care, housing, education, participation and protection. Although poverty affects all members of the household, it affects children most in not only short-run but long-run. The UN also notes that child poverty is not only a shortfall in income, but also a shortfall in the range of basic needs that prevent them from fully realizing their rights that are defined in the United Nations Convention on the Rights of the Child (CRC). Children have different needs than adults. There should be a specific approach for children that can highlight and emphasize the special needs essential to children and their development.

[1] UNGA (United Nations General Assembly) (2006) Promotion and protection of the rights of children, Report of the Third Committee, New York: United Nations.

Prior to 2006, poor children in Viet Nam were those living in income (or expenditure) poor. In 2006, the Ministry of Labor, Invalids and Social Affairs (MOLISA), the General Statistics Office (GSO) and UNICEF have researched and proposed a multi-dimensional child poverty measurement methodology based on the rights of children. According to this study, children who are deprived of at least two out of eight following dimensions (i) education, (ii) health, (ii) nutrition, (iv) housing, (v) water and sanitation, (vi) protection from early labor, (vii) recreation and entertainment and (viii) social protection are considered as the multi-dimensional poor children . This method also allows for determining the level of child deprivation in each indicator of each dimension. Viet Nam has consistently endeavored to improve the multidimensional child poverty measurement. Since 2008, multidimensional child poverty has been analyzed in seven dimensions. GSO has included a section on multidimensional child poverty in the publication of findings using VHLSSs.

However, MDCP measurement has so far not been institutionalized due to changing context. It requires the MDCP measurement method be updated and complete in order to (i) better reflect the change in nature. poverty and vulnerability in emerging children and government policy priorities, (ii) in line with international trends in poverty measurement to meet the objective of measuring poverty (iii) Harmonization with the new multi-dimensional measure of poverty introduced in 2015. In addition, the need to measure and monitor the international as well as national SDGs also requires the government to standardize multi-dimensional poverty measures in general and multi-dimensional child poverty in particular.

In Vietnam, poverty measurement is used not for poverty monitoring but also poverty targeting to identify beneficiaries of supportive programs and policies. Although the same national poverty line is applied, Vietnam's poverty measurement is implemented through two different data collection systems and methods for different purposes: (i) Macro-level poverty is measured using VHLSSs; (ii) Household-level poverty is identified by MOLISA. Every five years, a poverty census is conducted to update the whole list of poor hosseholds in Vietnam. Data from VHLSSs allow the analysis of trends in poverty, allowing comparisons between regions, urban/rural and ethnic groups. The identification of poverty rates by localities is policy-oriented and is used to allocate budgets for poverty reduction, hence it is often more subjective.

Multi-Dimensional Poverty Reduction (MDP) issued by the Government in 2015 is used to monitor multi-dimensional poverty at the macro level and is also used to identify poor households for poverty reduction and social protection policies. section 2016-2020. Measurement of multidimensional poverty at the household level cannot capture poverty dimension of children. In fact, many children lack access to basic social services (defined as multi-dimensional poverty) but live in households that are not identified as the poor in Viet

Nam. It also asks how the identification of multi-dimensional poor households can best cover poor children, ensuring that poor children can have access to supportive programs and policies. In other words, it is necessary to improve the multidimensional poverty of households to better reflect children's dimensions of poverty.

1.3. Research objective

This study has three main objectives as follows.

The first objective is to revise the MDC methodology developed by MOLISA and GSO in 2006 and propose a new multi-dimensional child poverty measurement methodology that is more relevant to the current socio-economic context of Viet Nam. It enables the government to develop a standard multi-dimensional child poverty method which can be used to monitor the progress of the SDGs on multi-dimensional child poverty reduction.

The second objective is to apply the revised MDCP methodology to analyze the current situation and trends of multi-dimensional child poverty in the period 2010-2014. Data used are the 2010 and 2014 VHLSS.

The third objective is to propose an integration of multi-dimensional child poverty indicators into the MDP measurement to better reflect child dimensions. As a result, more MDCP can be captured in MDP and the government may have more supportive programs and policies that are more appropriate for children.

1.4. Structure of the report

This report consists of 4 chapters. After chapter 1, Chapter 2 presents an overview of multidimensional poverty measurement and multi-dimensional child poverty in Viet Nam. This chapter also presents the methodology for measuring child poverty and the data sources used in this report. Chapter 3 presents the trend of multi-dimensional child poverty in Viet Nam using the revised measurement methodology. Chapter 4 summarizes the main findings of the report, and propose some recommendations on the next steps to be taken to identify better multi-dimensional poor children in Viet Nam.

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2. Updated multidimensional child poverty methodology in Vietnam

2.1. Multidimensional poverty and multidimensional child poverty in the world

The development of multi-dimensional measures of poverty comes as the culmination of a long process of theoretical and methodological development in economics. Being aware of the limitation of poverty measurement using monetary metric, policy makers have long sought alternative measures of welfare, in order to enrich their understanding of poverty and wellbeing. In the 1970s, the United Nations Research Institute for Social Development (UNRISD) developed a Physical Quality of Life Index (PQLI) building on a large number of non-monetary indicators in order to capture non-monetary aspects of wellbeing (Larson et al. 1979). In the 1990s, the United Nations Development Programme (UNDP) developed the influential Human Development Index (HDI), which measured wellbeing in three different dimensions: health, education and living standards. In 2003, Bourguingon and Chakravarty published an important paper that formalised the notion of multidimensional poverty. In this paper, they defined a multidimensional poverty measure as one that uses different cut-offs in different dimensions (Bourguingon and Chakravarty 2003). Alkire and Foster (2011) developed a method building on this definition, used a dual cut-off approach: first, deprivation cut-offs are determined for each deprivation to define the level at which a person is considered deprived in that dimension. Second, a poverty cut-off is set to determine the number of deprivations required to be considered poor.

In 2003, UNICEF set out to develop a bespoke measure of child poverty, based on the various rights and dimensions of wellbeing defined in the CRC. The measure, which came to be known as the "Bristol approach" used a simple counting approach, counting deprivations in the various dimensions of wellbeing defined by the CRC, building on the sociological approach to poverty, developed by Townsend (1979). The Bristol approach was update in 2012 to incorporate the latest methodological development in the area of multi-dimensional poverty. The resulting framework is known as the Multiple Overlapping Deprivations Analysis (MODA). The MODA framework is very similar to the Bristol approach, but allows for differentiated weightings of the various dimensions in line with the Alkire and Foster methodology, as well as allowing for a distinction between the incidence

of child poverty (i.e. the number of poor children) and its intensity (i.e. the severity of the deprivations). Finally, the MODA adopts a life cycle approach, focusing on age-specific indicators that are relevant for children and different stages of their development.

The usage of a multidimensional poverty measure presents several advantages over conventional poverty measures. Multidimensional measures of poverty offer the possibility to look at the issue of intra-household allocation of resources by focusing on individual-specific indicators of wellbeing, such as immunisation, or literacy. Multidimensional measures of poverty tend to be relatively transparent and intuitive. In their most simple form, they can often be interpreted as the number of deprivations affecting an individual. In addition, multidimensional measures may be less liable to measurement error issues related recall periods, under-reporting, subjective biases, etc. that often affect conventional poverty measures.

One of the main advantages of multidimensional poverty measures over, for instance, linear composite indices, is that they allow us to look at the joint distribution of deprivations. In other words, they allow us to see not only if a country suffers from, say, high malnutrition and high illiteracy, but also whether it is the same individuals who are suffering from these various deprivations.

This being said, there is no suggestion that multidimensional poverty measures should replace monetary poverty measures. Each captures different and valuable information about the wellbeing of individuals. The value of these measures often lies in their comparison and in the study of their discrepancies. By studying, for instance, the characteristics of individuals who are multidimensionally poor without being monetarily poor, or vice versa, we can better understand the complex mechanisms through which resources are transformed into wellbeing outcomes, and the reasons why they fail to be.

2.2. Povery measurement in Việt Nam

Poverty measurement in Vietnam is used for monitoring poverty, identifying poor households, and allocating resources for social assistance and poverty reduction programs. Every five-year period, the government adjusts poverty measurement and poverty lines to meet practical requirements and the socio-economic development in the corresponding period.

Before 2015, Viet Nam used only monetary poverty measurement. A household is considered poor if they have income per capita below the income poverty line. In 2015, based on the Alkire and Foster methodology, Vietnam developed a specific multidimensional

poverty measure, which is based on five basic dimensions including Education; Health, Housing; Water and sanitation; and Access to information. The five dimensions are measured by 10 indicators with equal weights. A household is defined as multi-dimensionally poor if they are deprived of at least 3 out of 10 indicators.

In December 2015, the Government of Vietnam issued the national poverty line, using a combination of income poverty lines and access to five basic (multi-dimensional) social services. Accordingly, a household is considered poor if it meets one of two criteria: (1) Have income per capita per month under income poverty line[2] or (2) Have income per capita between the income poverty line and the near-poor income line, and lack at least 03 out of 10 indicators.[3]

There are two differences in Vietnam's multidimensional poverty compared to international trends. Firstly, Vietnam's multidimensional poverty measurement unit is a household, not an individual, as in Alkire and Foster (2011). The multi-dimensional household poverty rate can be lower than multi-dimensional poverty rate since the poor households tend have a large number of members. Second, identification of poor households is a combination of income poverty and multi-dimensional poverty. Dimensions of poverty are identified only within households with income levels between the income poverty line and the near-poor income line.

2.3. Updated multidimensional child poverty methodology

In this study, the measurement of multidimensional child poverty (MDCP) has develop from the previous multidimensional child poverty indicators and the current socio-economic context and policy priorities of Vietnam. Selection of dimensions and indicators is based on the following criteria (i) in line with international standards on children's rights; (ii) in line with national legislation and policy priorities (such as the new Children and the Socio-Economic Development Plan of Vietnam); (iii) in line with existing tools (available MDCP indicators and MODA subdivision frameworks); (iv) Measurement capability and consistency.

The updated MDCP is based on eight dimensions, which are measured by 19 indicators (Table 1). Indicators are measured at the household level as well as the child level. A detailed definition of indicators and dimension is presented in the Appendix.

[2] Income poverty line: from 700,000 VND / person / month in rural areas; or 900,000 VND / person / month in urban areas.
[3] Near poor line: over 700,000 VND to 1,000,000 VND / person / month in rural areas or over 900,000 VND to 1.300.000 VND / person / month in urban areas

Compared to the previous MDCP, the proposed MDCP in this study has several new elements:

- Dimensions and indicators are more updated, taking into account the dimensions and indicators of nutrition and access to information, reflecting more fully the nature of poverty change and vulnerability of children in the context of low-middle income countries (urbanization and migration), and policy priorities identified within the framework of the Sustainable Development (Environment, SDG) .

- Dimensions and indicators are selected based on the rights and life cycles, taking into account age-specific needs, as well as differences in policies and programs for different ages.

- Dimensions and indicators reflect the availability of new data, as well as new policy priorities, for example the indicator "Children whose parents are migrant workers who are not registered as permanent or temporary (the current Social Protection dimension)" is replaced by the indicator "children not registered for permanent residence or temporary residence at their residence", since children's permanent or temporary residence status affects the accessibility of children's education and health care, especially public service units.

The Alkire and Foster (2011) methodology is used to calculate the MDCP poverty rate and MDCP index. The MDCP index reflects not only the poverty rate, but also the intensity of child poverty. Choosing the cut-off point (poverty line) affects the size of the poverty rate, and as a result, it also depends on the political decision. Children are considered on eight dimensions of deprivation, which are measured by 19 indicators. In this report, the two thresholds including one-third and one-fifth are considered. A child is considered as multidimensional poor if his/her weighted average of indicators is larger than one-third or one-fifth. A one-third poverty cutoff is also applied in MDP to identify the household poor in Vietnam. Using this cut-off the MDCP rate is quite low, at 7.8% in 2014. At the one-fifth cut-off, the incidence of MDCP poverty is similar to the monetary and MDP poverty rates, at around 19% of children.

Unlike poverty in income or expenditure, and multidimensional poverty, which are measured at the household level, multi-dimensional child poverty is measured for each child in households. Thus, in the same household there may be some children considered poor, while other children are not poor. This is important in identifying discrimination against specific groups of children in the family, such as orphans or children with disabilities, or gender discrimination. It should be noted that the indicators differ for different age groups. In addition, some indicators are measured at the household level, while others are measured at the child level.

Table 1. Dimensions and indicators of multidimensional child poverty

Domain/dimensions	Indicators	Level	Additional
Nutrition	Child (0-15 yrs) in hhd with caloric intake < 2100 kcal/ adult equivalent per day.	Household	Yes
	Child (0-15 yrs) in hhd with dietary diversity score < 8.	Household	Yes
Health	Child (0-4 yrs) that did not visit health centre.	Child	No
	Child (5-15 yrs) currently without health insurance.	Child	Yes
	Child (0-15 yrs) in hhd with total expenditure per adult member on tobacco, alcohol, etc. > VND (48,179)/mth or 5% of total hhd expenditure.	Household	Yes
Learning	Child (6-15 yrs) not enrolled at the appropriate level.	Child	No
	Child (0-4 yrs) with no toys.	Child	No
	Child (0-4 yrs) with no children's books or picture book.	Child	No
Shelter	Child (0-15 yrs) living in less-permanent or simple dwellings.	Household	No
	Child (0-15 yrs) living in house where per capita living space is less than 8m2.	Household	Yes
Environment	Child (0-15 yrs) living in a dwelling without safe drinking water.	Household	No
	Child (0-15 yrs) living in a dwelling without hygienic sanitation.	Household	No
	Child (0-15 yrs) living in dwelling that disposes of daily waste through dumping.	Household	No
Information	Child (0-15) living in house with no phone/ internet.	Household	Yes
	Child (0-15) living in hhd without television, radio, computer; and could not listen to the commune/village radio speaker.	Household	Yes
Child work	Child (6-15 yrs) that worked outside the household for employer or self-employed in past 12 months.	Child	No
	Child (6-15 yrs) working in family/ hhd for more than 4hrs/day.	Child	No
Protection	Child (0-4 yrs) with no birth registration.	Child	Yes
	Child (0-15 yrs) not registered in their place of residence.	Household	No

Source: VHLSS 2010-2014.

2.4. Data sources

The survey used for the analysis in this report is the Vietnam Household Living Standards Survey (VHLSS). The VHLSS is conducted every 2 years by the General Statistics Office (GSO) of Vietnam. The VHLSS collects information to be used as basis for the assessment of living standards, including monetary poverty and inequality. In addition to that, information is collected on health, education, employment and other dimensions of wellbeing, as well as livelihoods and demographic characteristics of the population. The VHLSS has national coverage for the civilian, non-institutional population. Only persons considered as permanent residents (more than 6 months) are eligible for inclusion in the survey.

The VHLSS uses a three-stage stratified cluster design. The survey is statistically representative for urban and rural areas in each of the 8 regions. The 2009 Population and Housing Census serves as the sampling frame. The VHLSS includes around 45,900 households in each round, selected from 3,063 communes of the master sample frame, and is divided into 2 types: (1) The sample for the income survey to collect information to assess non-monetary living standards at the national, regional and provincial/city level (around 80% of households); (2) The sample for the income-expenditure survey includes to collect sufficient information for further assessment and analysis of monetary living standard at the national and regional level (around 20% of households). This report uses sample expenditure data, including 9,399 households in each VHLSS.

3. Trends in Multidimensional Child Poverty in Vietnam

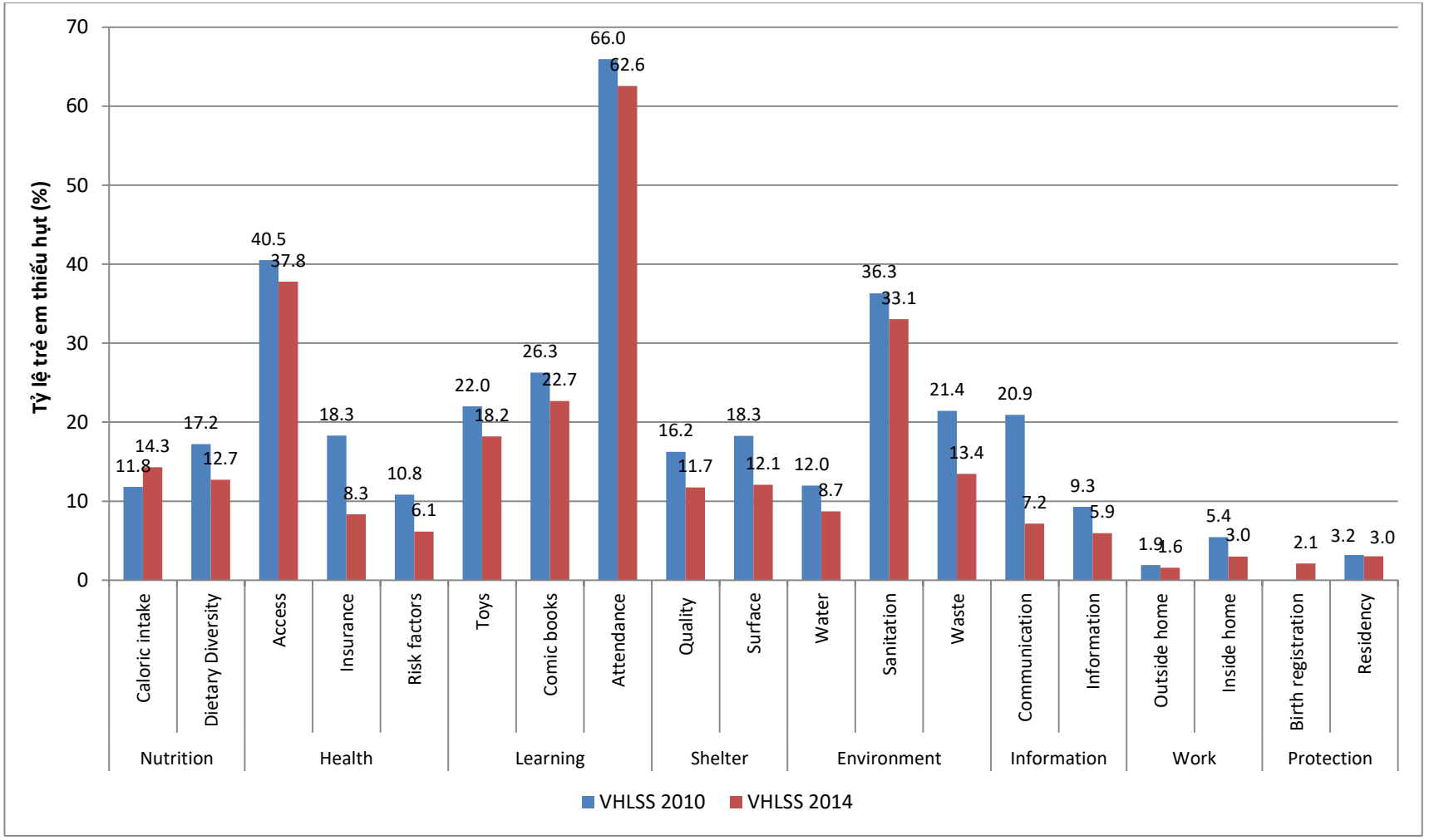
3.1. Multidimensional child poverty during 2010-2014

3.1.1. Deprivation of dimensions and indicators

In the period 2012-2014, the proportion of deprived children decreased in all indicators, except for the calorie intake. The percentage of children in households who had an average calorie intake below 2100 kcal per day increased by about 2.5 percentage points. The percentage of children with health insurance and access to information declined significantly. The percentage of children aged 0-4 without books and stories was very high, at 66% in 2010 and 62.6% in 2014. There were a very high proportion of children who were deprived of access to sanitation and hygiene. On the contrary, the percentage of children deprived of child labor, birth certificates and permanent residency was very low. It should be noted that data on birth certificates are available in the 2014 VHLSS but not the 2010 VHLSS.

There are 19 indicators of multi-dimensional poverty. The maximum number of deprived indicators is 13. It means that there were no children who were deprived of more than 13 indicators. The left panel of Figure 2 presents the proportion of children by the number of deficits. The proportion of children without any deficiency in indicators increased from 19% in 2010 to 27.4% in 2014. The percentage of children with a deficiency in 8-13 indicators decreased from 3.8% to 1.7% during the period 2010-2014.

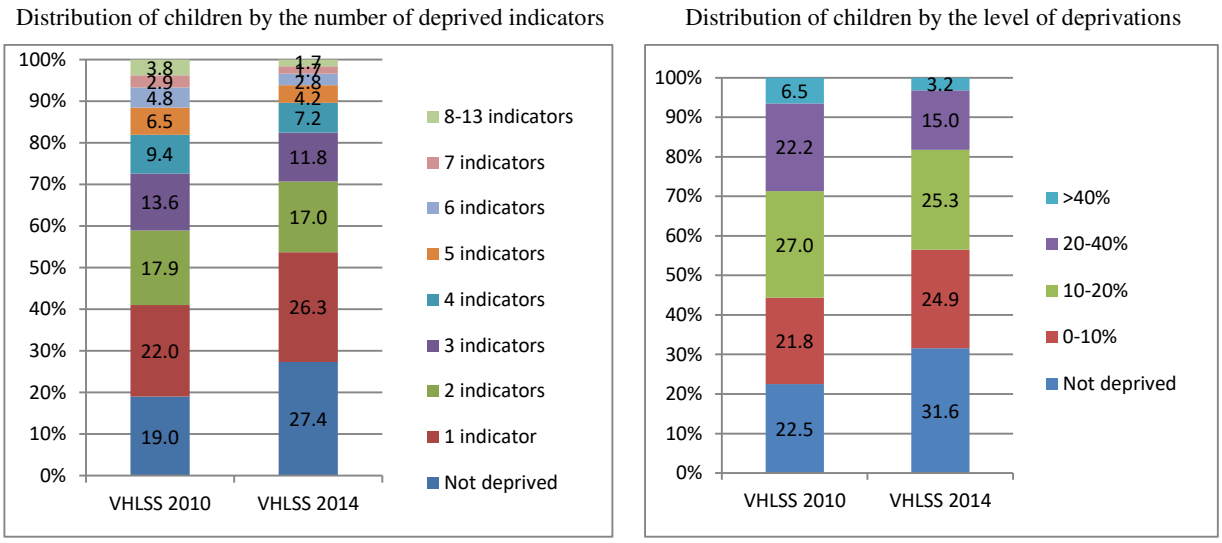
Figure 1. The percentage of deprived children



Source: Estimation from VHLSSs 2010 and 2014.

The right panel of Figure 2 presents the distribution of children by the degree of deprivation, which is calculated as the weighted average of the deprived indicators. It shows the level of deprivation decreased over time. The rate of children without deprivation increased from 22.5% to 31.6% in the period 2010-2014. At the same time, the rate of children suffering from deprivation of over 40% was reduced from 6.5% to 3.2% in the same period.

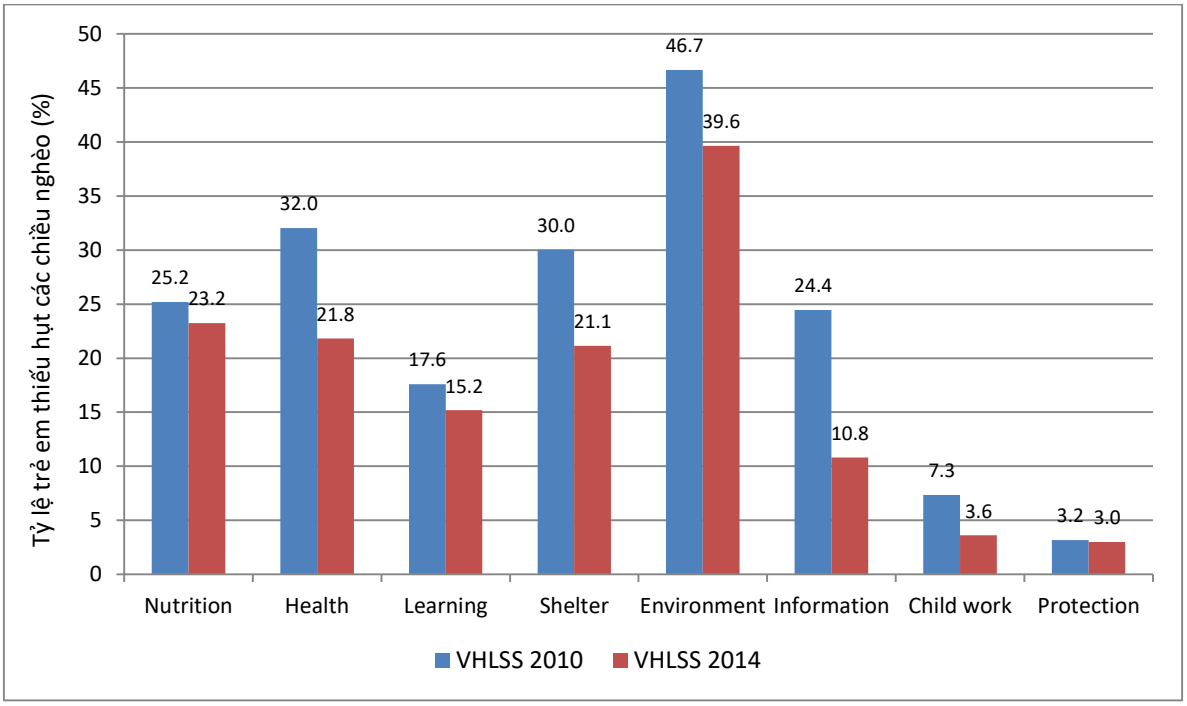
Figure 2. The percentage of children by the number of deprived indicators (%)



Source: Estimation from VHLSSs 2010 and 2014.

Figure 3 shows the proportion of children with dimensional deprivation. A child is considered as deprived of a dimension if he or she is deprived of at least one indicator in that dimension. The proportion of deprived children was reduced in all dimensions during the period 2010-2014, especially in dimensions 'Access to information' and 'Health'. In 2014, the rate of children deprived of dimension 'Environment' was highest, followed by deprivation in dimension 'Nutrition' and 'Shelter'. Dimensions with the lowest deprivation are 'Labor' and 'Child protection'.

Figure 3. percentage of children with deprived dimensions (%)



Source: Estimation from VHLSSs 2010 and 2014.

3.1.2. The proportion of multidimensional child poverty and multidimensional child poverty index

Similar to most multidimensional poverty studies, this study uses the same weight for dimensions. In each dimension, the indicators have the same weight. As indicators differ for different ages, the weight of each indicator as well as dimension also varies for different ages. Table 2 shows the weights of indicators by ages (calculated in %).

Table 2. Effective weights of indicators (% of total index), by age brackets

Domain	Indicator	Aged 0-2	Aged 3-4	Aged 5	Aged 6-10	Aged 11-15
Nutrition	Caloric intake	7.1	7.1	7.1	6.3	6.3
	Dietary diversity	7.1	7.1	7.1	6.3	6.3
Health	Access	7.1	7.1	-	-	-
	Insurance	-	-	7.1	6.3	6.3
	Risk factors	7.1	7.1	7.1	6.3	6.3
Learning	Toys	7.1	4.8	-	-	-
	Comic books	7.1	4.8	-	-	-
	Attendance		4.8	14.3	12.5	12.5
Shelter	Quality	7.1	7.1	7.1	6.3	6.3
	Surface	7.1	7.1	7.1	6.3	6.3
Environment	Water	4.8	4.8	4.8	4.2	4.2

Domain	Indicator	**Aged 0-2**	**Aged 3-4**	**Aged 5**	**Aged 6-10**	**Aged 11-15**
	Sanitation	4.8	4.8	4.8	4.2	4.2
	Waste	4.8	4.8	4.8	4.2	4.2
Information	Communication	7.1	7.1	7.1	6.3	6.3
	Information	7.1	7.1	7.1	6.3	6.3
Work	Outside home	-	-	-	6.3	6.3
	Inside home	-	-	-	6.3	6.3
Protection	Birth registration	7.1	7.1	-	-	-
	Residency	7.1	7.1	14.3	12.5	12.5
Total		100	100	100	100	100

Source: Estimation from VHLSSs 2010 and 2014.

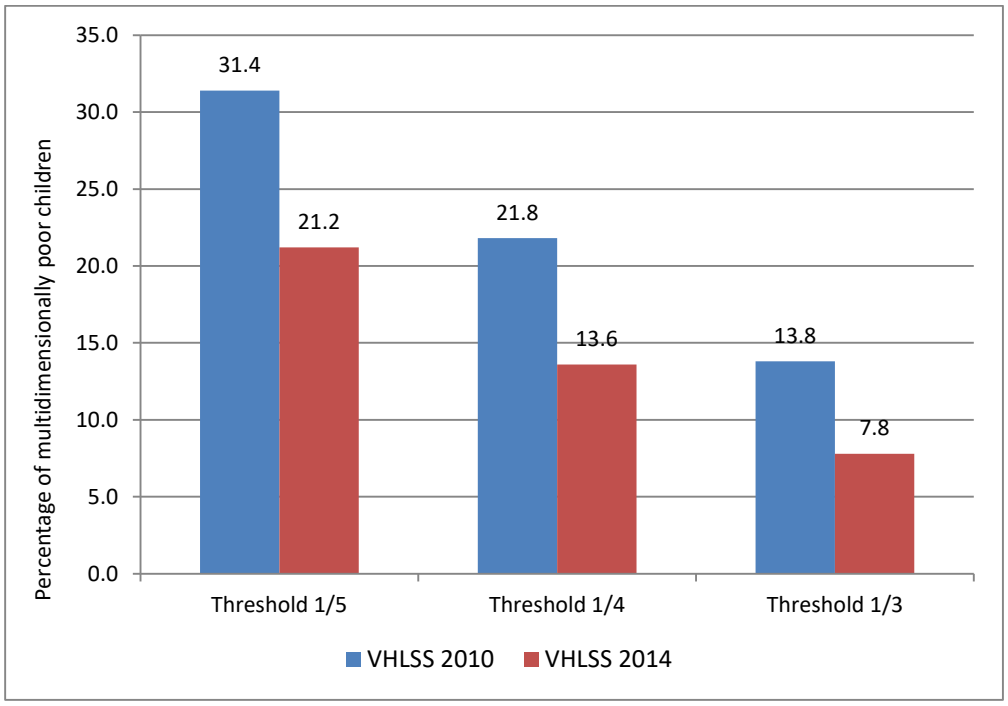
Using the Alkire and Foster (2011) method we can estimate the deprivation score of children. This score is the weighted mean of the indicators with the weight given in the previous table. It should be noted that the sum of the weights is equal to 100 in the previous table, but weights are divided by 100 when they are used to estimate the MDPC index. It means that the weights sum to one. The deprivation score ranges from zero when children are not deprived on any indicator to one when children are deprived of all the indicators.

Children are considered multi-dimensionally poor if their score is higher than a cut-off level. The higher the cut-off, the less children are deprived and the corresponding multi-dimensional poverty rate is lower. The cut-off is usually chosen as 1/3. It means that the number of deprived weighted indicators or dimensions is larger than 1/3. At this cut-off, the multidimensional child poverty rate in Viet Nam was 7.8% in 2014, which was differently lower than the proportion of children living in multidimensionally poor households or expenditure poor households. Thus, the report mainly uses a one-fifth cutoff, which gives the percentage of multidimensional child poverty close to the proportion of children in MDP household as well as expenditure poor ones.

Between 2010 and 2014, the multidimensional child poverty rate using the one-thirdcut-off fell from 13.8% to 7.8%. This reduction is statistically significant at 1%, which means that we can be confident that the change in measurement reflects the actual improvement in the living conditions of Vietnamese children, not because of metric or random statistical fluctuations. Multi-dimensional child poverty reduction is also evident at different cut-off levels of deprivation. The proportion of MDCP children at the one-fifth and

one-fourth cut-off was reduced by 10 and 8 percentage points in the same period, respectively.

Figure 4. percentage of Multidimensional Child Poverty (%)



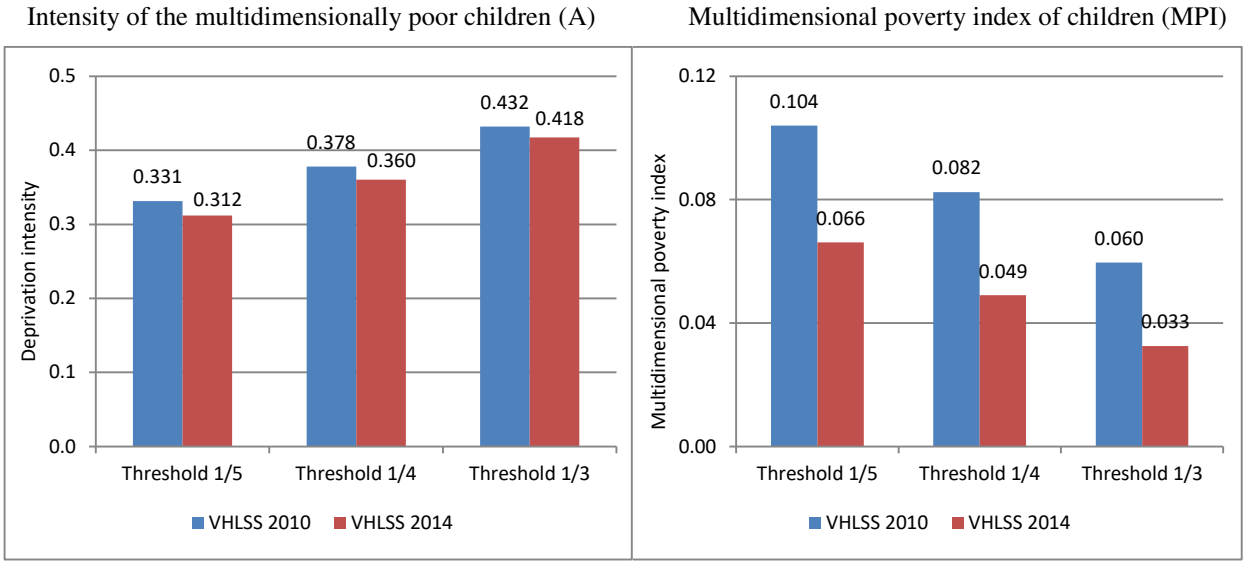
Source: Estimation from VHLSSs 2010 and 2014.

Note: The multidimensional child poverty index used in the analysis does not include the birth registration indicator - as it is not included in the VHLSS 2010. Therefore, the figures in the graph are slightly different. Compared to the data in the following sections, the child poverty index also includes the birth registration index. The multidimensional child poverty rate in 2014 using the full list of indicators was 19.6% using the cut-of 1/5 and 7.7% using the cut-off of 1/3.

In addition to the multidimensional poverty rate, Alkire and Foster (2011) proposes the multidimensional poverty index (demoted by MPI or M0). The MPI is equal to the multidimensional poverty rate multiplied by the deprived score of the multidimensionally poor.[4] The MPI reflects both the poverty rate (H) and the poverty intensity of the poor (A). Figure 5 shows that the MPI of children decreased during the period 2010-2014 regardless of the cut-off used.

MPI = A. H. Where H is the proportion of the multidimensional poor, and A is the average of deprived score of the multidimensionaly poor.

Figure 5. Intensity and Multidimensionally poor index of children



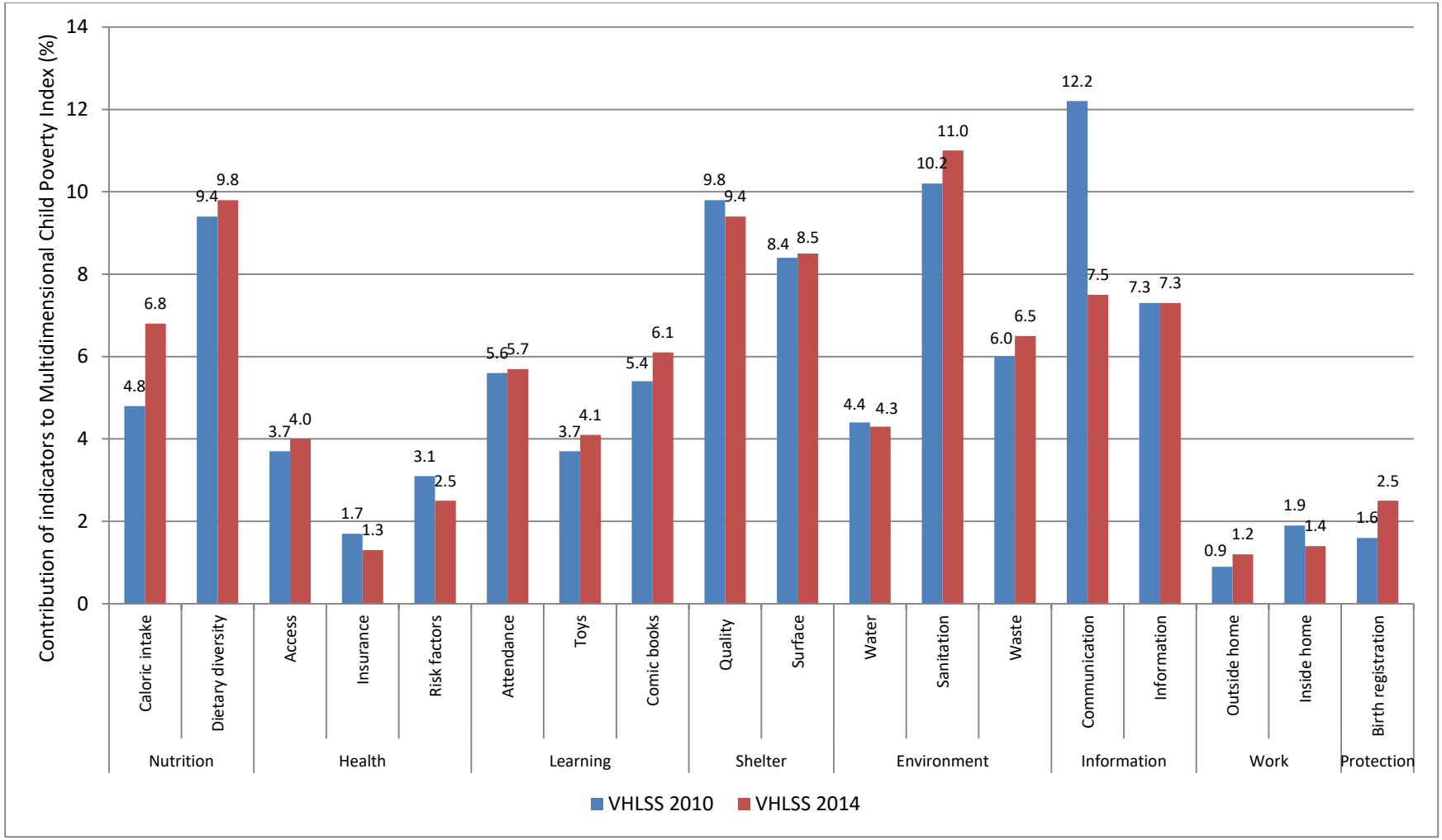
Source: Estimation from VHLSSs 2010 and 2014.

3.1.3. Decomposition analysis

The approach of Alkire and Foster (2011) allows us to analyze how the level of deficiency in indicators and dimensions contributes to the overall multidimensional poverty index. This decomposition analysis allows us to explore the cause of multidimensional child poverty, and suggests which indicators should be improved to reduce the overall multidimensional poverty.

The figure below shows the contribution of different indicators on the multidimensional child poverty index (MPI) in 2010 and 2014 (using the poverty cut-off equal to one fifth). It shows that the contribution of most indications to the overall MDCP did not change much over time. It implies that deprivation decreased for most indicator over time. However, the contribution of nutrition to MDCP increased from 4.8% to 6.8% in this period. This is due to the slight increase in the proportion of children living in households with the required calorie consumption below the minimum. The communication has the largest decrease in the contribution to the MDCP, with the contribution decreasing by 4.7 percentage points.

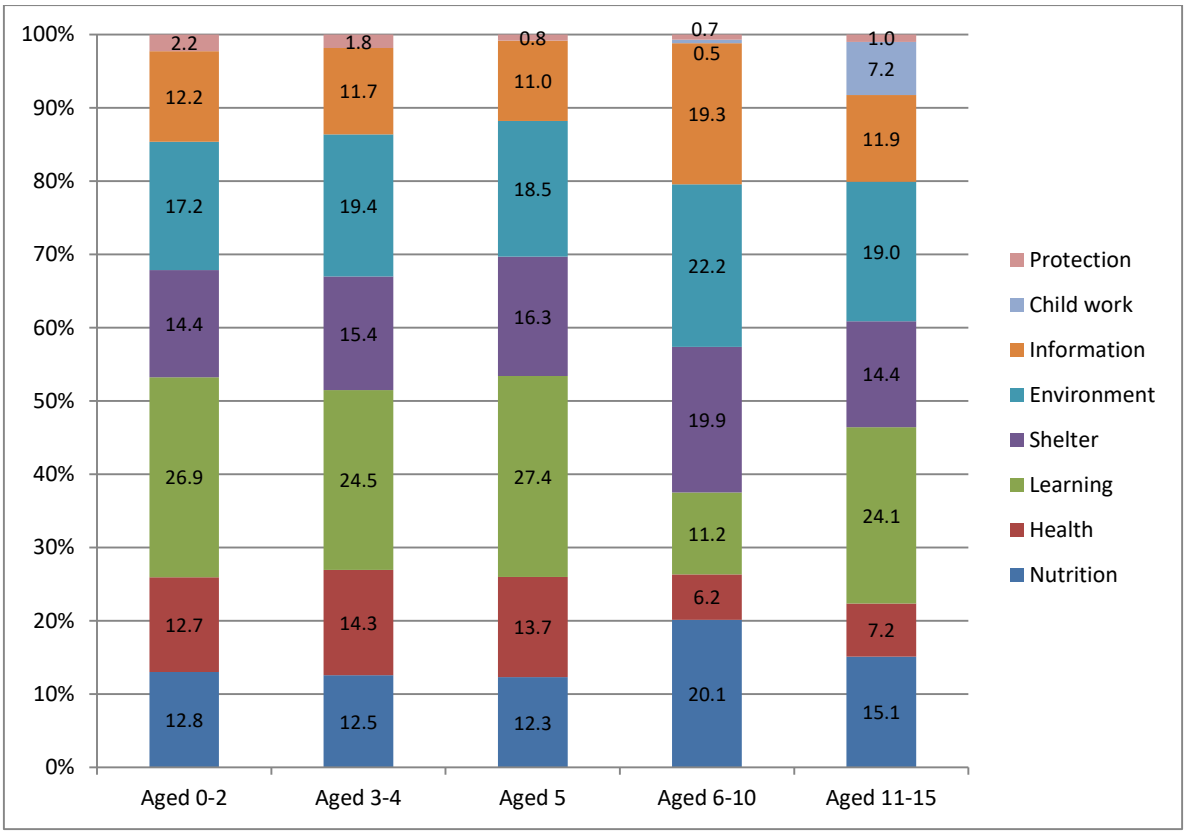
Figure 6. Contribution of indicators to the Multidimensional Child Poverty Index (%)



Source: Estimation from VHLSSs 2010 and 2014.

The dimensions and indicators of MDCP in this study vary for ages. The contribution of each dimension to the overall MDCP is relatively different for age groups. For example, education plays a large part in multidimensional poverty of the under-five and over-10 age groups, but low in the 6-10 age group. Similarly, health contributes little to the MDCP of children aged 6 to 10 years, but nutrition and access to information have contributed largely to MDCP of this child group. Child labor is a problem for children aged 11 to 15 years, contributing 7.2% to the MDCP of these children.

Figure 7. Contribution of Dimensions to the Multidimensional Child Poverty Index (%)



Source: Estimation from VHLSS 2014.

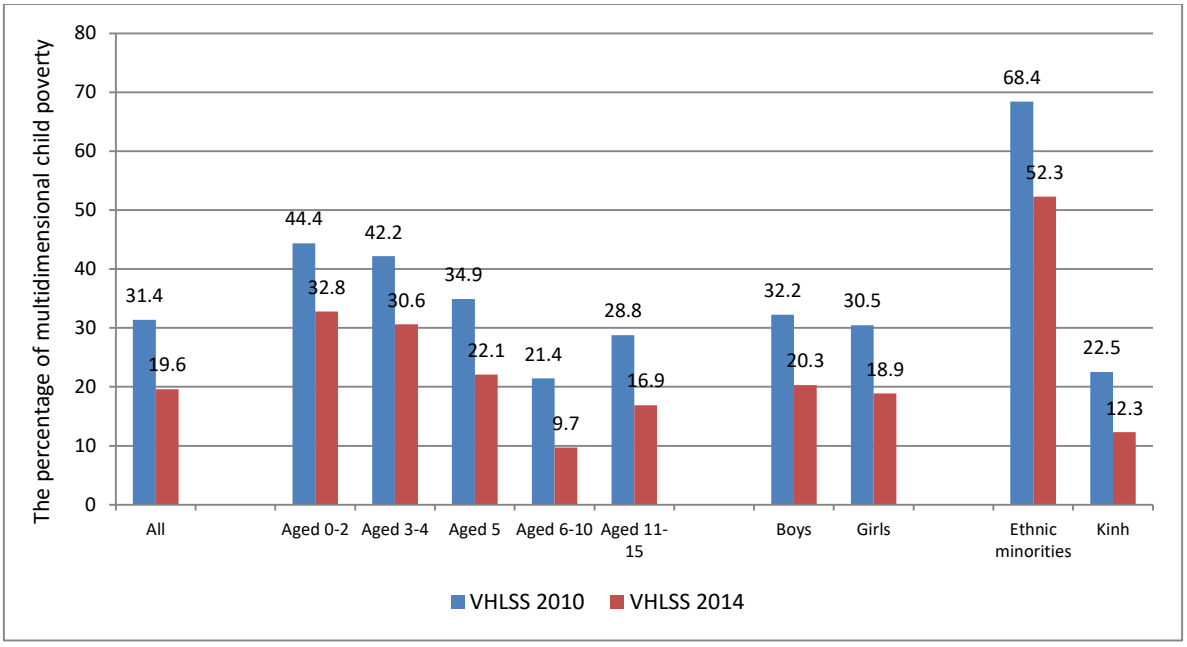
3.1.4. Multi-dimensional poverty among children's groups

MDCP differs considerably for different population groups. The figure below shows the MDCP rate using the one-fifth cut-off. Child poverty decline in all age groups and child sub-groups over the period 2010-2014. The MDCP rate is the lowest among children aged 6-10 and the highest among children aged 0-2. Compared to children of other ages, children aged 0-2 have additional indicators including toys, comic books, and medical care, and the deprivation rate of these indicators

is particularly high. Boys and girls have quite similar MDCP rates.

The gap in MDCP between ethnic minorities and Kinh is very high. In 2014, the MDCP rates of ethnic minorities and Kinh were 52.3% and 12.3%, respectively. The proportion of ethnic minority children in all the multidimensially poor children increased over time. Although ethnic minority children accounted only 18% of the total number of children, they accounted for 42% of the multi-dimensionally poor children in 2010. In 2014, the proportion of ethnic minority children in the total number of poor children increased to 49%.

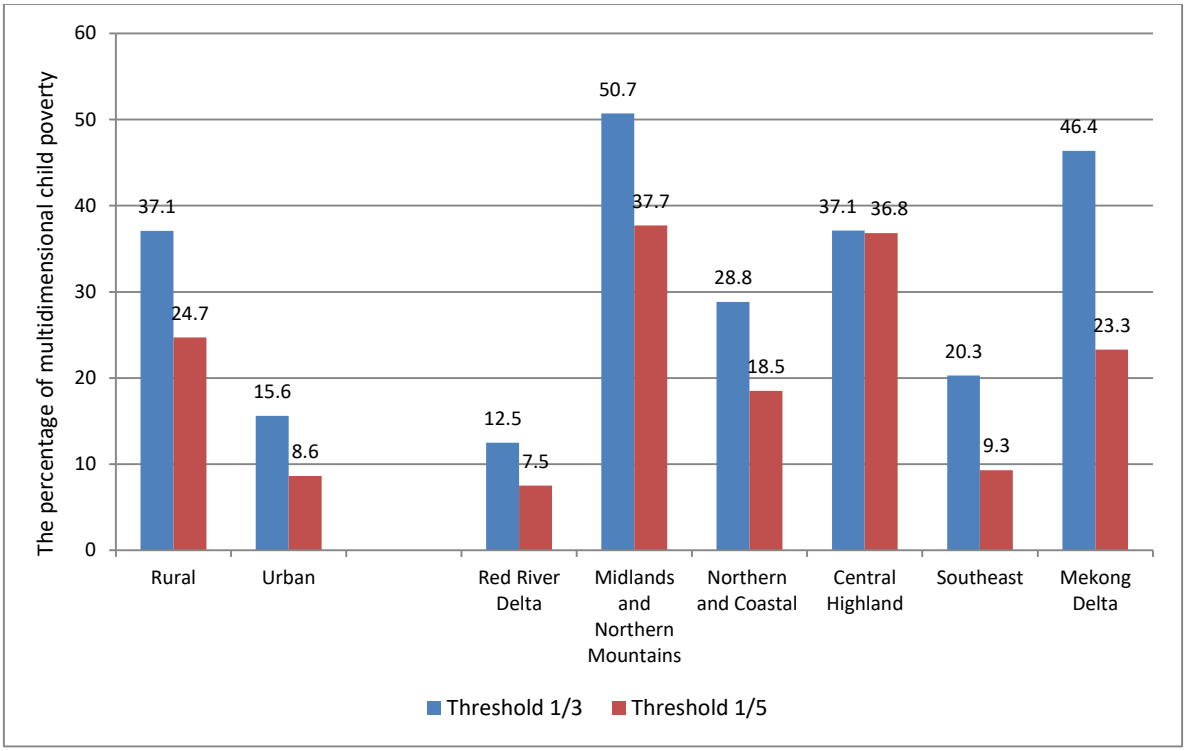
Figure 8. The percentage of multidimensional child poverty by demographic characteristics, 2014 (%)



Source: Estimation from VHLSSs 2010 and 2014.

Most regions except Central Highlands experienced a significant reduction in MDCP during 2010-2014 period. The region which had the highest reduction in MDCP is the Mekong River Delta, where the proportion of children deprived of more than one-fifth of dimensions declined from 46.4% in 2010 to 23.3% in 2014. Northern Mountains and Central Highlands are the regions with the highest poverty rates in the country.

Figure 9. The percentage of multidimensional child poverty by regions, 2014 (%)



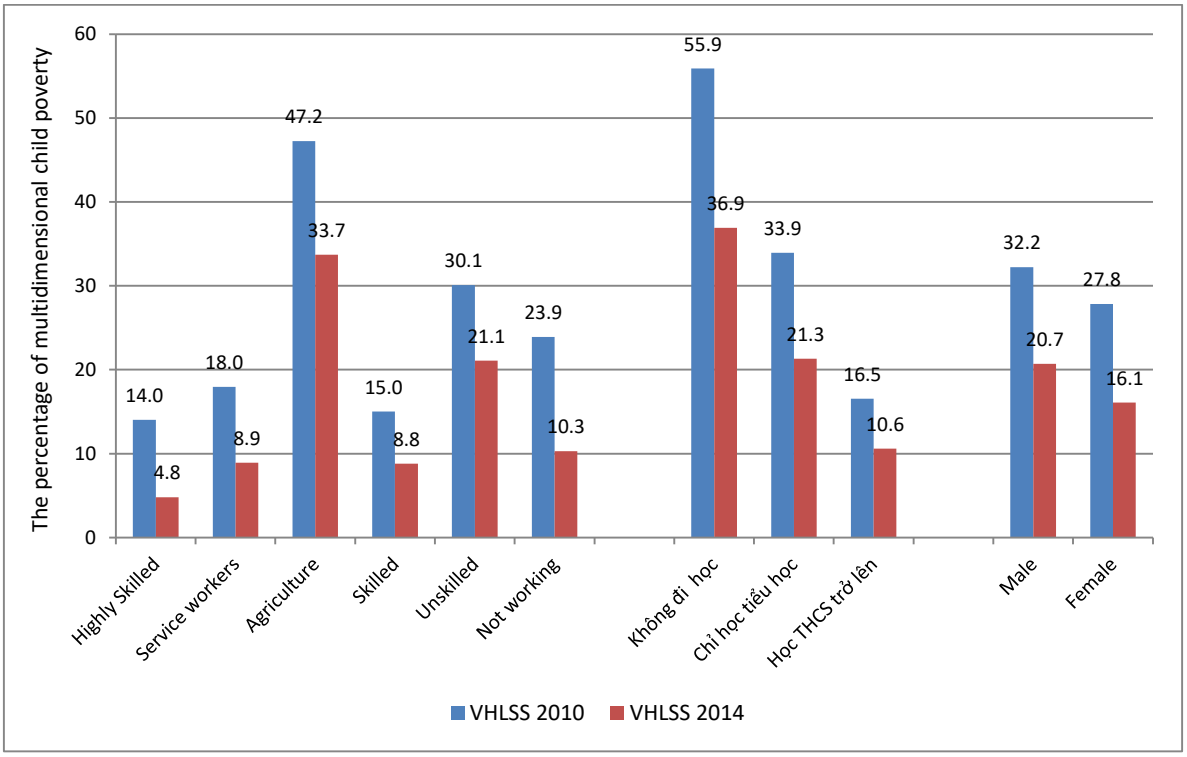
Source: Estimation from VHLSS 2014.

The MDCP rate was higher for households whose heads were less educated and more likely to be employed in agriculture. However, all household groups achieved poverty reduction during the period 2010-2014.

It is noteworthy that the MDCP rate was lower in female-headed households than in male-headed households. This finding is similar as for the MDP and monetary poverty. Female-headed households tend to have a smaller household size, since men in households migrate or female heads are widowed or divorced. Indicators such as the average living area are less likely to be deprived. If husbands migrate, they send remittances to home households, hence increasing family living standards. In addition, female- and male-head household can have different expenditure patterns, and this can explain the difference in the MDCP between them

.

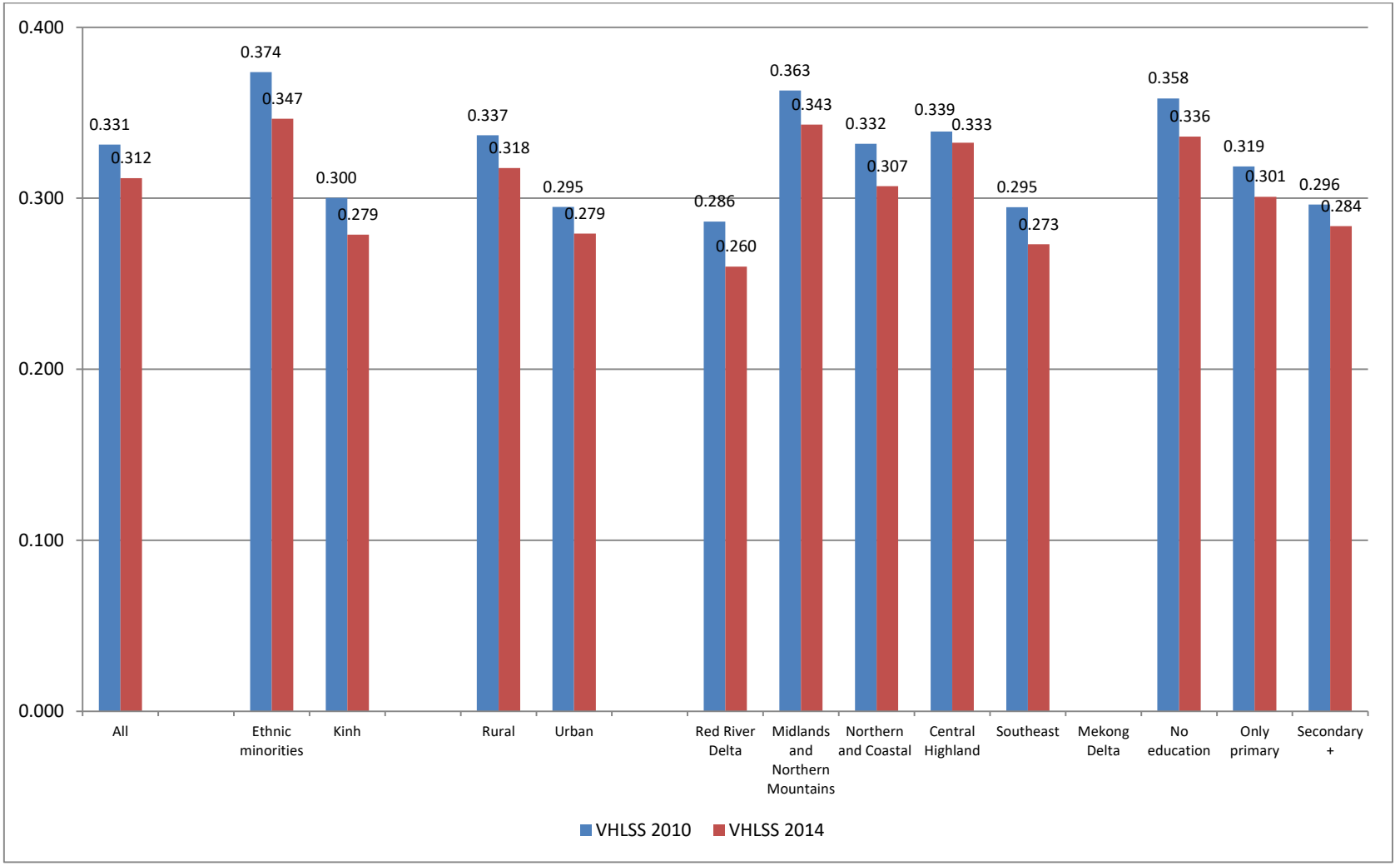
Figure 10. The percentage of multidimensional child poverty by household head characteristics, 2014 (%)



Source: Estimation from VHLSSs 2010 and 2014.

The intensity or severity of the multi-dimensional poverty of children was reduced for all groups of children in the period 2010-2014. Poverty intensity of poor children differs between groups of children. Children of ethnic minorities, children in rural areas, northern mountainous areas and Central Highlands, and those living in households with low education head had higher poverty intensity than other groups of children.

Figure 11. Intensity of the multi-dimensional poor children



Source: Estimation from VHLSSs 2010 and 2014.

3.2. Deprivation in dimensions and indicators

3.2.1. Correlation between multi-dimensional child poverty

In this section, we look at the overlap between deprivations in the different indicators and between domains. As recommended in the MODA approach, we consider a child to be deprived in a given domain if he is deprived in any of the indicators contained in that domain. The overlap between deprivations is an important part of the analysis of multidimensional child poverty for several reasons. First, different deprivations interact and can aggravate each other. A child who is both undernourished and in bad health, may, for instance, be at much greater risk than one who is suffering from only one of those deprivations. Secondly, the overlap can tells us something about systemic disadvantage faced by specific groups, due to discrimination or other reasons that cannot be adequately addressed through narrow sectoral interventions.

Table **Error! Reference source not found.** shows the correlations between deprivations in different domains. A high correlation between two domains indicates that a child who deprived in one domain is also likely to be deprived in the other domain. The correlation coefficient varies from -1, when the two factors are absolutely inversely correlated, to 1, when two factors are absolutely positively correlated. Correlation coefficient around 0 reflects two non-interrelated factors.

Table 3 shows that a child deprived in the environment domain, is also likely to be deprived in shelter and information. By contrast, protection is negatively correlated with all domains, except health, learning and shelter. This suggests that a child deprived in protection is not likely to be deprived nutrition, for instance.

Table 3. Correlation between dimensions

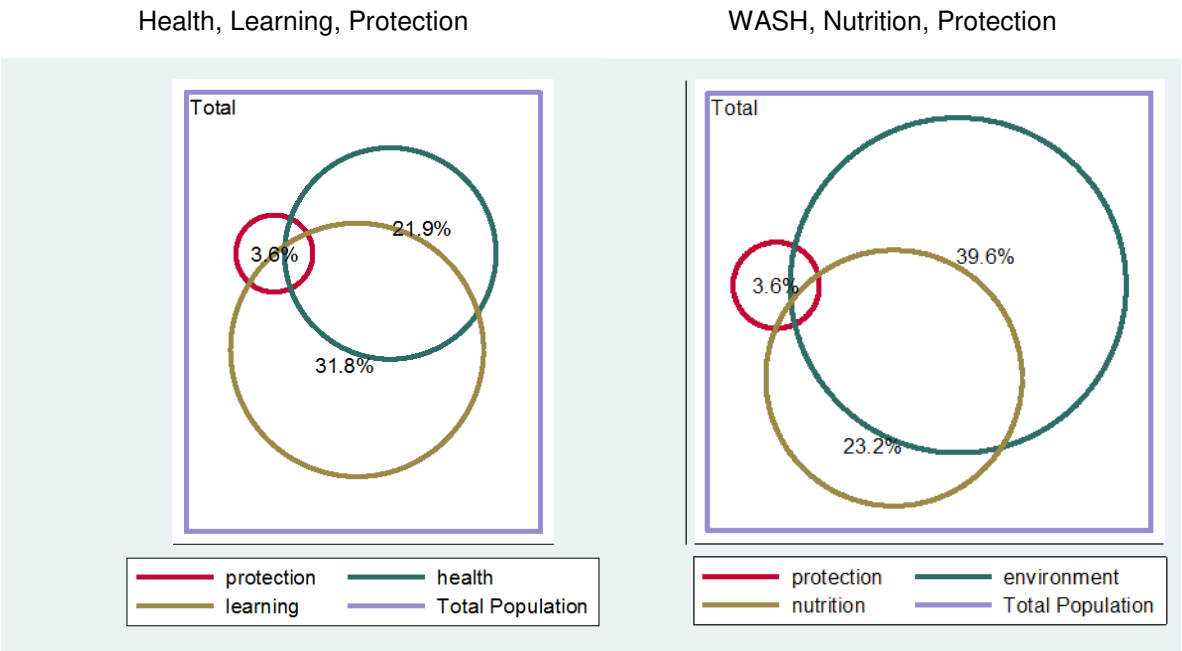
Base domain	Nutrition	Health	Education	Child Work	Shelter	Environment	Information
Nutrition	1						
Health	0.0425*	1					
Learning	0.0921*	0.4419*	1				
Child Work	0.3258*	0.1407*	0.2924*	1			
Shelter	0.3351*	0.1206*	0.1695*	0.2603*	1		
Environment	0.4594*	0.1417*	0.1589*	0.4177*	0.5952*	1	
Information	0.4613*	0.0985*	0.1753*	0.3077*	0.4885*	0.6038*	1

Base domain	Nutrition	Health	Education	Child Work	Shelter	Environment	Information
Protection	-0.1314*	0.1037*	0.1681*	-0.1467*	0.1006*	-0.2039*	-0.0708*

Source: VHLSS 2014
Note: A child is considered deprived in a domain if s/he is deprived in at least one of the indicators for that domain
N.B.: * = significantly different from 0 at 5%

In the Figure below, the overlap between protection and other domains is represented graphically. The analysis shows, for instance, that even though many children are deprived in the environment domain, very few of the children deprived in protection suffer from environmental deprivations. Similarly, very few of the protection deprived children suffer from nutritional deprivations. This is consistent with the earlier finding that residency registration tended to be lower amongst income rich households, that would not be expected to suffer deprivations in, say, nutrition.

Figure 12. Overlap between selected deprivations



Source: Estimation from VHLSS 2014.

3.2.2. Deprivation in each dimension and indicator

In this section, we will examine the gap in the different dimensions of the multidimensional child poverty index. This will help us better understand the potential vulnerabilities that need to be addressed to reduce child poverty in Viet Nam.

The lack of nutritional indicators tends to increase in larger groups of children, although the differences between age groups are not high. Health indicators vary by age groups. Children aged 0 to 4 are deprived if they do not visit a health center in the last 12 months, while children aged 6 to 15 are considered to be deprived if they do not have health insurance (children under 6 get free medical care and health insurance). In addition to these specific age-specific indicators, we consider health risks related to tobacco consumption and alcohol use in the household. A child is considered deficient if the household spends more than 5% of total household expenditures on cigarettes and alcohol, or over 10,851 thousand VND per capita. Although children often do not directly consume this item, it increases the risk of the child being affected indirectly through passive smoking, or domestic violence and other related problems. Generally, the indicators at household level will not be much different between children of different ages. However, some indicators such as non-resident registration are higher for younger children. Residence registration is an important issue in Vietnam, as it is mandatory for access to many public services, including health and education. The problem is more common, due to migration from rural to urban areas.

Dimensions at the child-level such as education and labor are very different between age groups. The educational gap is very high among children under 6 and over 10 years of age. The problem of child labor is mainly for children aged 11 to 15. In the VHLSS data, no children were involved in home and outdoor work at the same time.

Table 4. The percentage of children deprived of indicators by age, 2014 (%)

Indicators	Aged 0-2	Aged 3-4	Aged 5	Aged 6-10	Aged 11-15
Caloric intake	13.2	12.6	13.1	15.1	15.0
Dietary diversity	9.9	9.8	11.0	13.3	15.3
Access	32.9	46.2	.	.	.
Insurance	.	.	.	6.1	10.7
Risk factors	5.1	7.6	7.5	6.1	6.4
Toys	26.0	16.8			
Comic books	66.7	55.4			

Indicators	Aged 0-2	Aged 3-4	Aged 5	Aged 6-10	Aged 11-15
Attendance		41.8	24.4	4.0	22.9
Quality	9.8	12.1	12.6	12.3	12.0
Surface	14.5	14.1	11.3	12.0	9.9
Water	8.0	8.8	7.5	8.8	9.2
Sanitation	31.7	32.8	33.5	32.5	34.4
Waste	12.3	12.7	13.5	14.1	13.8
Communication	6.7	7.3	6.9	8.1	6.5
Information	5.9	5.9	5.2	5.8	6.2
Outside home	.	.	.	0.1	4.0
Inside home	.	.	.	0.1	3.1
Birth registration	2.9	0.7	.	.	.
Residency	5.2	3.6	2.9	2.7	1.8

Source: Estimation from VHLSS 2014.

Geographic analysis showed that the Central Highlands region had the highest percentage of children living in households with calorie deficiency (20.1%). This is consistent with the perception that the region also had the highest multidimensional poverty. However, we also found that the South East region had a high calorie deprivation rate (18.2%), although this region has the lowest poverty (4.7%). In this case, the lack of food consumption does not seem to be accompanied by a lack of quality food consumption, as only 2.7% of children lived in households the food diversity lower than 8 (compared to the corresponding of 22.3% in the Central Highlands). Although the calorie deficit is not high, the dietary deficiency is quite severe in the Northern Midlands and Mountains (37%), where many ethnic minorities are concentrated.

The region with the highest proportion of children without health insurance is the Mekong River Delta (15%), although this area has low poverty rates. The percentage of children without health insurance was three times higher than in the Northern Midlands and Mountains. This is because children in poorest areas are more likely to be provided with free health insurance.

Rates of exposure to health risks differ across regions. In the Central Highlands, 12.2% of children lived in households with a high consumption of tobacco and alcohol, compared to only 1.6% of children living this kind of households in the Red River Delta. The rate of deprivation rate of housing varies greatly across regions. In the Mekong River Delta,

29.4% of children lived in households who did not meet the housing standards, compared with 0.6% of children in the Red River Delta. This may be partly due to differences in climate and culture. The proportion of ethnic minority children living in temporary house was high, at 29.3%.

In terms of average housing area, Central Highlands had the highest rate of deprivation at 28.1%, while the Mekong River Delta performed relatively well with the deprivation rate of 8.1%. Regarding the dimension of environment, Northern Midlands and Mountains had the highest rate of deprivation, while the South East and the Red River Delta perform had a low deprivation rate of all the three environmental indicators. Central Highlands had a high rate of hygienic deprivation. The regions with the highest rates of child labor were the Central Highlands (3.1% working outside the home) and the Mekong River Delta (2.8%). In the Central Region, only 0.8% of children were involved in employment outside the home.

The lack of residence registration was highest in the South East (7.9%), where there are a large number of immigrants. However, the rate of children without birth registration was the highest in the Central Highlands (5%) and the lowest in the South East (0.9%).

Table 5. The percentage of children deprived of indicators by region, 2014 (%)

Indicators	Red River Delta	Midlands and Northern Mountains	Northern and Coastal	Central Highland	Southeast	Mekong Delta
Caloric intake	10.9	15.1	14.0	20.1	18.2	12.6
Dietary diversity	5.8	37.0	13.2	22.3	2.7	6.2
Access	39.4	47.9	41.4	32.7	31.3	29.0
Insurance	3.5	5.1	6.1	10.8	11.2	15.0
Risk factors	1.6	4.5	8.7	12.2	4.0	10.0
Toys	13.5	38.1	28.2	35.7	9.5	21.6
Comic books	47.4	75.6	67.9	68.5	54.3	71.0
Attendance	13.3	14.7	15.9	26.3	17.6	26.1
Quality	0.6	23.6	5.4	12.6	3.6	29.4
Surface	9.4	13.8	10.2	28.1	13.9	8.1
Water	0.7	24.4	7.2	16.8	1.6	10.4
Sanitation	12.5	66.1	37.9	56.8	6.3	39.3
Waste	5.8	31.6	12.2	16.6	3.0	17.4
Communication	3.6	15.2	7.8	14	3.1	5.1
Information	1.8	15.4	6.2	11.7	2.2	4.1

Indicators	Red River Delta	Midlands and Northern Mountains	Northern and Coastal	Central Highland	Southeast	Mekong Delta
Outside home	0.4	6.0	2.6	3.3	0.0	1.5
Inside home	0.7	0.8	1.3	3.1	1.6	2.8
Birth registration	1.5	1.8	1.8	5.0	0.9	3.6
Residency	3.0	0.9	1.8	2.4	7.9	2.3

Source: Estimation from VHLSS 2014.

The gender gap in the deprivation rate is negligible, as Viet Nam is relatively successful in ensuring gender equality. In addition, many indicators are measured at the household level and they are the same for all the children in a household. The difference in deprivation between rural and urban children is relatively large, but still smaller than the difference between ethnic minority children and the Kinh children. For example, 42.6% of ethnic minority children are deprived of dietary diversity, compared with 6% of Kinh children.

Nearly half of ethnic minority children did not visit the health center in the past year, although children under five had free healthcare treatment. Children living in rural areas were less likely to visit health centers than urban children.

Ethnic minority children are also more likely to drop out of school than Kinh children. The difference in school attendance among groups of children is relatively small compared to other indicators such as comic books and toys. 85% of ethnic minority children aged 0-4 did not have comic books, compared to 57.4% of Kinh children. Similarly, the difference in the proportion of children having toys between child groups is quite large. It means that although there is a small difference in school enrolment between child groups, there is a large difference in school preparation between child groups.

The rate of deprivation in housing, access to information and communication of ethnic minority children was remarkably higher than that of Kinh children. Ethnic minority children were also more likely to engage in labor. 7.2% of them work more than 4 hours a day in the home, and 2.9% work outside the home.

Table 6. The percentage of children deprived of indicators by demographic characteristics, 2014 (%)

Indicators	Ethnic minorities	Kinh	Boys	Girls	Rural	Urban
Caloric intake	22.5	12.5	14.6	14.0	15.5	11.8
Dietary diversity	42.6	6.0	13.2	12.2	17.2	2.9
Access	48.5	35.3	36.2	39.4	40.5	32.1
Insurance	6.7	8.7	7.8	8.9	9.8	5
Risk factors	9.8	5.5	6.4	6.1	7.0	4.7
Toys	48.2	16.8	22.0	23.4	28.7	10.2
Comic books	85.0	57.4	62.2	63.0	69.4	48.5
Attendance	22.7	17.2	19.5	16.9	19.0	16.4
Quality	29.3	7.8	12.1	11.3	15.3	3.8
Surface	23.6	9.5	12.0	12.1	12.5	11.0
Water	28.6	4.2	8.8	8.6	11.8	2.0
Sanitation	77.5	23.0	33.0	33.1	44.8	7.5
Waste	35.3	8.5	13.4	13.5	17.1	5.6
Communication	24.2	3.3	7.3	6.9	9.3	2.6
Information	20.9	2.6	6.1	5.7	7.7	2.2
Outside home	7.2	0.9	2.0	2.1	2.7	0.6
Inside home	2.9	1.3	1.9	1.3	2.0	0.7
Birth registration	4.2	1.6	1.6	2.6	2.7	0.8
Residency	0.8	3.5	2.9	3.2	1.6	6.1

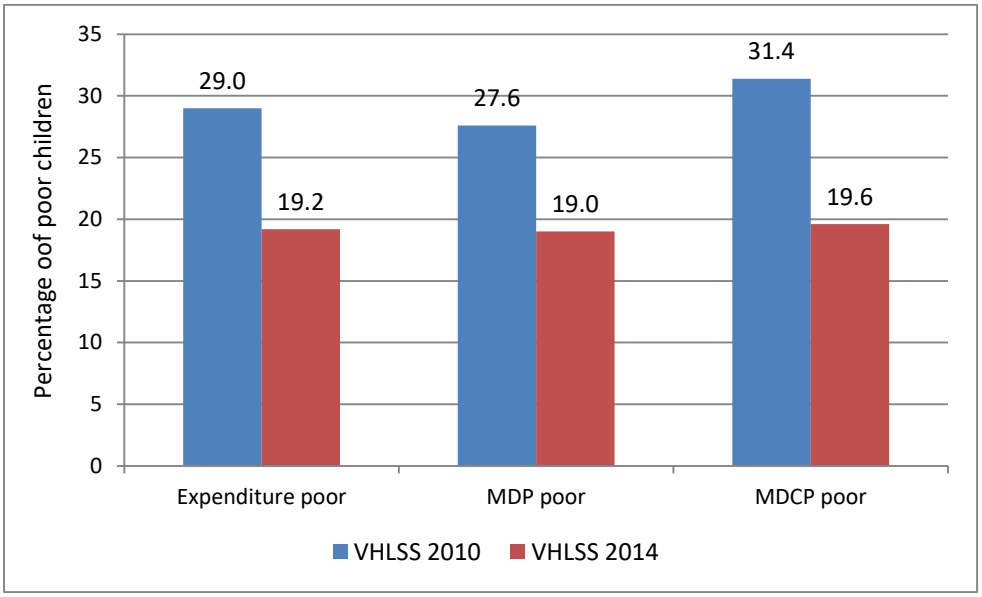
Source: Estimation from VHLSS 2014.

3.3. Comparison of child poverty measures

Poverty in Vietnam is measured by several methods such as income, expenditure and multidimensional poverty. In this report, we analyse and compare the following poverty measurement:

- Expenditure poverty: expenditure poor children are children living in households whose per capita consumption is less than 964 thousand VND/person/month. This poverty line is constructed by the General Statistics Office of Vietnam and the World Bank for 2014. 19.2% of Vietnamese children belonged to this group in 2014.
- Multidimensional poverty: Children living in households who are deprived of more than three out of 10 indicators. These households are multidimensionally poor according to the multidimensional poverty measurement for the period 2016-2020. There were 19% of Vietnamese children in multidimensionally poor households in 2014.
- Multidimensional child poverty: children who are deprived of at least one-fifth of the weighted indicators as defined in this study. The multidimensional child poverty rate was 19.6% in 2014.

Figure 13. percentage of poor children by different measures (%)



Source: Estimation from VHLSSs 2010 and 2014.

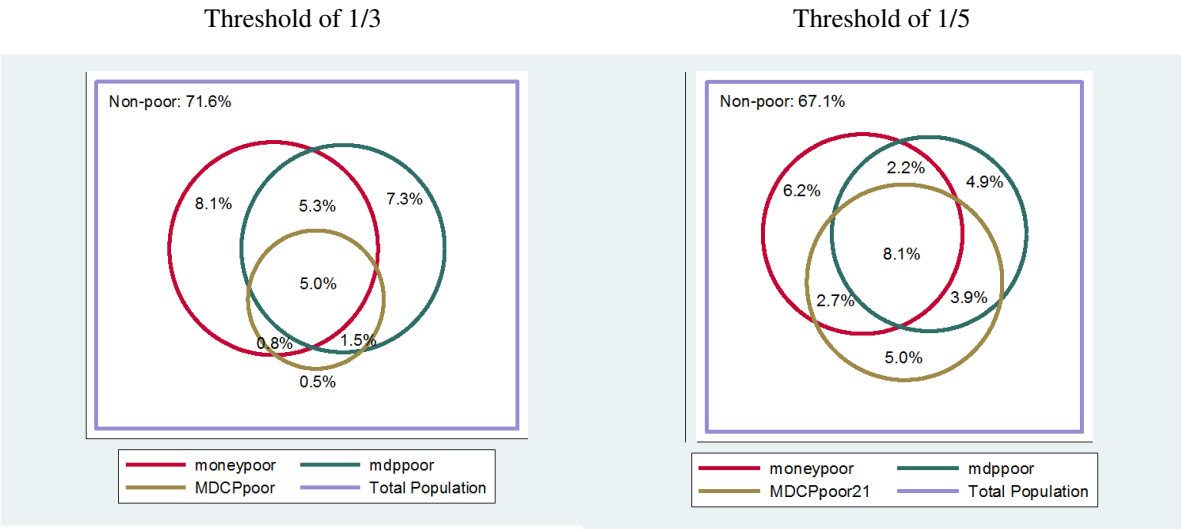
It shows that 28.4% of Vietnamese children are classified as poor by at least one of the three poverty measurement methods. The figure below shows overlap between multidimensionally poor children (using the cut-offs of 1/3 and 1/5) and children in expenditure poor households and multidimensionally poor households. We can see a significant degree of overlap between different poverty measurement methods, that is, if a child is identified as poor by a measurement method, he or she is likely to be poor in other poverty measurement methods.

However, the correlation between poverty measurement methods is not absolute: only 5% of poor children in all three measures, while the majority of poor children is considered poor by one of the three methods. This has important implications for public policy, as it

implies that, depending on which poverty measurement method is chosen, one may miss half the children in need of support.

The comparison between the different measurement methods is complicated by the fact that different poverty measurement methods result in different numbers of poor children, depending on the specific threshold or the poverty line chosen for each method. Therefore, a small overlap may be due to (a) low correlation between the two approaches, or (b) one of the methods identify a smaller number of poor children. For comparison, we should construct three poverty measurement methods, which produce similar proportions of poor children, at around 19%.

Figure 14: Overlap between poverty measurement methods



Source: Estimation from VHLSS 2014.

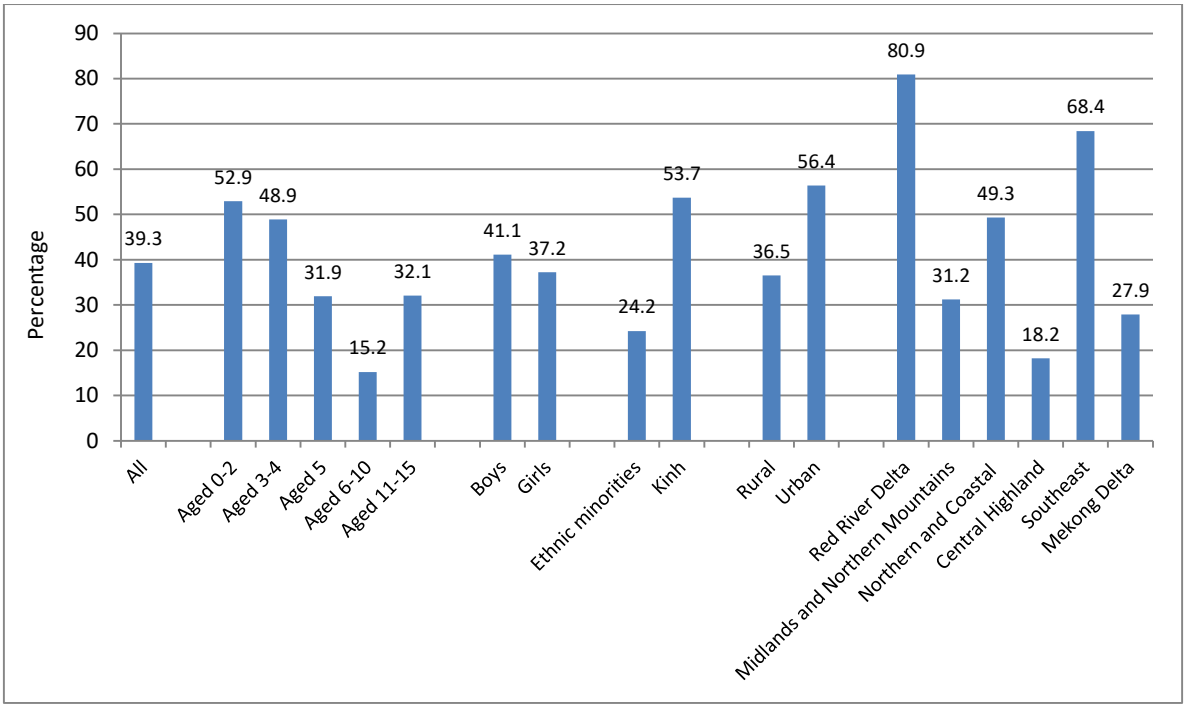
3.4. Increasing the inclusion of multidimensionally poor children in the MDP

3.4.1. Multidimensionally poor children not identified by multidimensional poverty

There are a large number of multidimensionally poor children, who do not live in multidimensionally poor households. More specifically, 39.3% of multidimensionally poor children were not living in multidimensionally poor households in the 2014 VHLSS. These poor children are considered as excluded children by the current poverty identification. In other words, the exclusion error or exclusion rate of a poverty targeting method is the proportion of multidimensionally poor children who are not identified as the poor by the targeting method in the total multidimensionally poor children. The lowest exclusion rate is

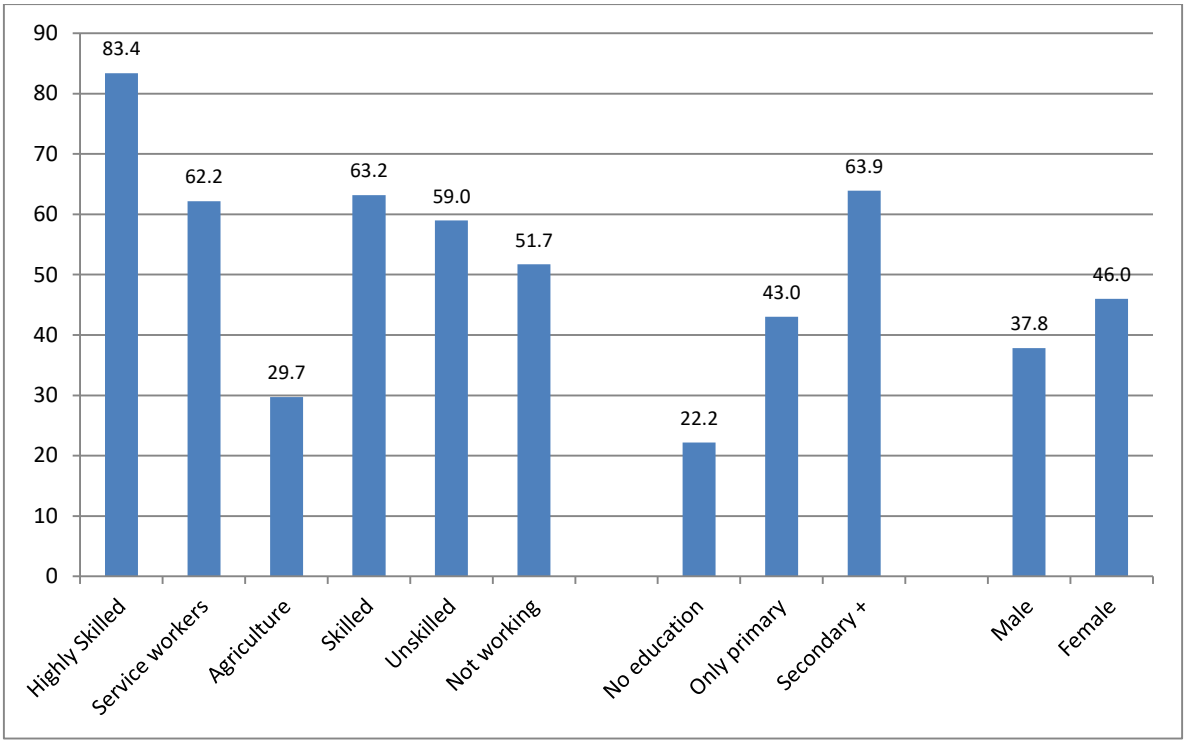
equal to zero, meaning that all the multidimensionally poor children are identified as the poor by the targeting method.

Figure 15: percentage of MDCP children not covered in MDP households (%)



Source: Estimation from VHLSS 2014.

Figure 16: percentage of MDCP children not covered in MDP households by the characteristics of household heads (%)



Source: Estimation from VHLSS 2014.

Multidimensionally poor children aged 0-4 have the highest rate of exclusion. The exclusion rate is higher for low poverty groups such as Kinh and urban children. We also notice significant regional variations in the targeting accuracy of the different measures. This is presumably due to regional variations in the deprivation profiles of poor children. In Red River Delta and South East, the MDP targeting would miss as many as 80.9% and 68.4% of MDCP poor children, respectively.

Similarly, the rate of multidimensionally poor children not identified by MDP tended to be higher in households with high education heads as well as households with high skill heads.

The table below looks at each individual deprivation, to see which type of child-specific vulnerabilities are most likely to be overlooked by the MDP. The table is broken down by age groups, as many of the indicators used here are age-specific. The analysis shows, predictably, that the MDP index is most likely to accurately target household level material deprivations that are themselves included in the MDP, such as housing quality, access to water and information.

On the other hand, an MDP-based targeting mechanism is likely to leave out a large proportion of children suffering from deprivations in the domains of nutrition, child labour,

protection, health and education. In the education domain, we find that over 70% of children under 5 without access to early childhood development opportunities, are likely to be overlooked by the MDP. Similarly, 81.8% of children aged 3 to 4, who have not visited health centres in the past 12 months, will be excluded by the MDP.

Table 7. Percentage of deprived children missed by MDP targeting, by age

Dimension	Indicators	Aged 0-2	Aged 3-4	Aged 5	Aged 6-10	Aged 11-15
Nutrition	Caloric intake	72.3	75.7	69.1	73.5	69.1
	Dietary diversity	50.5	47.3	43.2	55.0	58.5
Health	Access	76.8	81.8	N/A	N/A	N/A
	Insurance	.	.	.	61.8	58.8
	Risk factors	58.9	60.8	47.9	66.1	64.8
Learning	Toys	66.5	53.7	N/A	N/A	N/A
	Comic books	75.8	70.9	N/A	N/A	N/A
	Attendance	N/A	72.5	52.6	54.4	66.7
Shelter	Quality	N/A	N/A	N/A	73.2	49.5
	Surface	N/A	N/A	N/A	0.0	43.4
Environment	Water	25.0	29.8	20.6	32.5	30.0
	Sanitation	43.2	45.7	29.4	44.8	40.5
Môi trường Information	Waste	27.5	21.6	22.9	25.3	26.8
	Communication	52.1	48.1	47.4	53.3	54.0
	Information	50.5	49.5	48.3	54.8	53.8
Work	Outside home	29.0	33.0	22.8	32.3	27.2
	Inside home	20.7	12.6	12.9	20.3	22.0
Protection	Birth registration	75.4	92.0	92.4	86.2	86.2
	Residency	54.7	95.8	N/A	N/A	N/A

Source: Estimation from VHLSS 2014.

3.4.2. Improving the targeting of multidimensionally poor children

In this section, we explore possible ways of improving the targeting accuracy of the MDP vis-à-vis MDCP-poor children by introducing small and practically feasible modifications to the index construction. For the present purposes, we consider three alternative MDP method, reflecting various trade-offs between breadth and simplicity that need to be made when constructing such indices. The methods are only meant to be illustrative of possible improvements that could be achieved through simple modifications. They should therefore not be seen as final or definitive indices. The final choice of indicators, will have to be made on a combination of political and technical considerations, as well as taking into account practical constraints relating to acceptability, measurability and verifiability of the indicators.

The three methods considered here, in addition to the original MDP index, are:

- Method 1: This index adds 5 child-specific indicators to the MDP. The indicators (1.Child under 5 with no access to toys; 2. Children 3 to 15 not enrolled in school/ pre-school at age-appropriate level, 3. Dietary diversity score under 8, 4. Child over 5 works outside the household, 5. Child under 5 has no birth certificate), which have been "borrowed" from the MDCP index, have been selected through a process of trial and error to obtain the best possible improvement in targeting accuracy with the least possible amount of additional information. In C-MDP 1, the five new, child-specific indicators are given a weight of 50% in the modified MDP index. That means that each of the 5 new indicators have a weight of 10% in the overall MDP index, whereas each of the 10 "old" MDP indicators now receive a weight of just 5%.
- Method 2: This index adds the same 5 child-specific indicators to the existing MDP index. However, instead of giving them extra weight in the new MDP index, all the indicators (old and new) are each given equal weight. That means that the C-MDP 2 index includes a total of 15 indicators (10 household-level and 5 child-specific), each of which has a weight of 6.7%.
- Method 3: This index again adds the same 5 child-specific indicators, which have been selected to maximise the targeting accuracy of the modified MDP. The difference is that, in this case, we let the data determine the weights of the different indicators, by using a multivariate regression. The MDCP index score is thus included as a dependent variable in the regression, while all the MDP indicators, as well as our 5 child-specific indicators, are used as independent variables. The resulting coefficients are then used as weights on the indicators in the new C-MDP 3 index (see Annex C below for details on the weights).

The table below summarizes MDPC estimates by different methods. According to the current MDP method, the proportion of MDP households is 16.6%, and children living in these MDP households account for 19% of children (under 16 years). The proportion of MDP households identified by Method 1 is 14.2%, by Method 2 is 11.2%, and by Method 3 is 13.9%. The percentage of children in households who are identified as the MDP poor by the three method is 19%, 16% and 19.6%, respectively.

Table 8. Methods to adjust MDP

Methods	Weights of MDCP indicators	Number of Indicators	Poverty cut-off (share of deprivations)	Coverage (% of households)	Coverage (% of children)
Current MDP	10 current indicators	1/10th each	0.33	16.6%	19.0%
Method 1	10 current indicators and 5 child indicators	1/20 for 10 MDCP indicators and 1/10 for 5 child indicators	0.23	14.2%	19.0%
Method 2	10 current indicators and 5 child indicators	1/15th each	0.24	11.2%	16.0%
Method 3	10 current indicators and 5 child indicators	Determined through OLS regression	0.19	13.9%	19.6%

Source: Estimation from VHLSS 2014.

The table below shows the exclusion rate of the three multidimensional poverty methods. Method 1 reduces the exclusion incidence of multidimensionally poor children from 39.3% to 29.5%. Methods 2 and 3 have the exclusion rate of 37.0% and 23.6%, respectively. The degree of improvement of the method varies for different age groups. For example, Method 1 is very effective in identifying multi-dimensional poor children at age 5, while Method 3 is better at identifying other age groups.

Table 9. The percentage of MDCP excluded by different poverty measurement methods (%)

Child groups		Current MDP	Method 1	Method 2	Method 3
All children		39.3	29.5	37.0	23.6
Age	0-2	52.9	45.0	56.4	37.9
	3-4	48.9	36.8	40.9	21.6
	5	31.9	14.5	15.5	26.1
	6-10	15.2	20.0	20.4	10.0
	11-15	32.1	14.7	26.0	14.5
Gender	Boys	41.1	30.6	38.3	25.5
	Girls	37.2	28.2	35.6	21.4
Ethnicity	Ethnic minority	24.2	17.2	21.4	9.1
	Kinh	53.7	41.2	52.1	37.5
Area	Rural	36.5	26.5	33.7	20.9
	Urban	56.4	48.1	58.1	40.2

Child groups		Current MDP	Method 1	Method 2	Method 3
Regions	Red River Delta	80.9	61.4	79.2	57.1
	Midlands and Northern Mountains	31.2	19.1	27.0	13.5
	Northern and Coastal	49.3	30.4	44.5	22.6
	Central Highland	18.2	18.8	15.8	10.7
	Southeast	68.4	55.8	69.4	49.8
	Mekong Delta	27.9	27.2	29.3	23.6
Parents' employment	Highly Skilled	83.4	44.2	70.1	74.4
	Service workers	62.2	51.5	59.5	45.5
	Agriculture	29.7	22.9	27.7	16.0
	Skilled	63.2	46.7	62.6	38.5
	Unskilled	59.0	41.9	57.2	33.7
	Not working	51.7	38.1	48.2	39.2
Parents' education	No education	22.2	19.7	21.0	12.6
	Only primary	43.0	33.6	42.5	25.3
	Secondary +	63.9	41.4	58.1	40.1
Gender of household head	Male	37.8	28.9	36.0	22.6
	Female	46.0	31.9	41.5	28.0

Source: Estimation from VHLSS 2014.

In general, Method 3, which uses weights obtained from regression, identifies the best multi-dimensional child poverty. However, different weights attached to indicators can make local application more difficult. Method 2 uses equal weights and it has a lower exclusion rate than Method 1. Thus Method 2 can be used in practice.

4. Conclusion and policy recommendations

4.1. Updated methodology

Viet Nam continues to improve and standardize multidimensional poverty measures in general and multidimensional child poverty measures in particular, in line with the new development situation, especially the need to monitor implementation progress of SDG1 on poverty reduction in children.

This multidimensional child poverty report has developed based on the multidimensional poverty studies in Vietnam as well as in in the world. It is updated to suit the socio-economic context of a low-middle-income country. This report proposes eight dimensions of poverty including nutrition, health, development, shelter, environment, access to information, child labor, and child protection. The eight dimensions are measured by 19 indicators. The MDCP is measured and analysed using Alkire and Foster's (2011) methodology.

Multidimensionally poor children are defined as those whose deprivation degree is larger a defined cut-off. In this study, MDCP is analysed using three cut-off levels: one-third, one-quarter and one-fifth. The findings suggest that the cut-off of one-fifth (i.e. children considered multidimensionally poor if the weighted average of their indicators is larger than one-fifth) is more appropriate, since the MDCP rate was equal to 19.6% in 2014, which was similar to the proportion of children living in MDP households as well as the proportion of children living in expenditure poor households. In addition, this MDCP incidence can be used as a baseline for monitoring the progress of the SDG1 Sustainable Development Goal for Child Poverty Reduction.

The MDP is an official tool for targeting social protection programmes. However, he MDP measures poverty at the household level, and there is a risk that vulnerable and poor children are not covered by the MDP and they might be left out of Vietnam’s social protection system. Thus, the study also proposes three methods of making MDP more child sentitive so that it can better cover multidimensionally poor children.

4.2 Main findings on multidimensional child poverty in Vietnam

Over the period 2010-2014, the deprivation rate was reduced for all indicators except for the indicator of calorie intake. In 2014, dimension 'Education or learning' had the highest proportion of deprived children. 31.8% of children were deprived in at least one indicator of this domain. The deprivation rate varies across age groups, for example deprivation in health care is popular for small children, while the problem of child labor is mainly for children aged 11-15.

Vietnam has experienced a rapid and robust decrease in multidimensional child poverty in recent years: The proportion of children suffering from deprivations in more than 1/3 of weighted MDCP indicators decreased by 6 percentage points between 2010 and 2014. The proportion with deprivations in more than $1/5^{th}$ of weighted indicators decreased by more than 10 percentage points.

Although MDCP has declined in different groups of children, there is still a large gap in MDCP among child groups for example between ethnic minority children and Kinh children. The MDCP rate of ethnic minority children was 52.3%, while that rate of the Kinh children was 12.3% (at the cut-off level of one-fifth) by 2014. Although minority children only accounted for 18% % of total children, but they accounted for 42% of multidimensionally poor children in 2010. In 2014, the proportion of ethnic minority children in multidimensionally poor children increased to 49%.

There are many multidimensionally poor children living in non-poor households and vice versa. Nearly half of the multidimensionally poor children living in non-poor households and more than a quarter of multidimensionally poor children are not identified as poor by any poverty measuremeant methods. As a result, these poor and vulnerable children can be missed by social protection programs.

In order to improve the identification of multidimensionally poor children through multidimensional poverty, the study proposes to make multidimensional poverty more child sensitive by adding five children indicators to the 10 current multidimensional poverty indicators. The results show that the addition of five indicators of children to multidimensional poverty can reduce the exclusion rate significantly: the proportion of poor children living in nonpoor households decreases from 39.3% to 23.6%.

4.3. Policy recommendations

Findings in the report show the important role of standardizing child poverty measurement tools, in order to adequately identify child poverty and ensure that no poor children are missed and left behind. It also shows the importance of adjusting policies and measures to reduce poverty in line with the needs of children. There are several policy recommendations as follows.

Multidimensional child poverty institutionalization: Vietnam has issues the income poverty lines and multidimensional poverty lines to monitor poverty and identify poor households for poverty reduction and welfare programs for the period 2016-2020, but not all multidimensionally poor children are included and covered. Many poor children are missed in official poverty statistics in Vietnam. Therefore, the Government needs to institutionalize multi-dimensional child poverty by promulgating the child poverty line and the multidimensional child poverty measurement in Viet Nam from 2020. This is especially necessary in the context of Viet Nam's commitment to achieve the Sustainable Development Goals.

Improving measurement of indicators: Several MDCP dimensions are not well measured, for example nutrition and health of children in VHLSS. It is therefore necessary to continue to study, improve and supplement indicators for measuring child poverty dimensions, especially indicators on child nutrition. For example, the height, weight or diet of the day should be considered for inclusion in the VHLSS 2018 and 2020 questionnaires to better measure multidimensional child poverty.

Integrating multidimensional child poverty indicator into the national statistic indicators: 19 multi-dimensional child poverty indicators should be integrated into the system of national statistic indicators for monitoring MDCP at the macro level. Child poverty indicators should also be finalized and added to the multidimensional poverty instruments of the 2019 Poverty Census.

Strengthening the feasibility of the methodology: Although data on 19 MDCP are available in the 2014 VHLSS, a field pilot should be undertaken to improve the poverty identification toolkit for the period 2021-2025. It is also important to study and test for weight

differences in an expert way, with the view that there are dimensions or indicators that are more important in determining whether children are poor.

Improving the targeting of poor children: To cover more poor children, monetary poverty measurement needs to be used together with multidimensional poverty measurement. Multidimensional poverty indicators need to be adjusted to better reflect child deprivations by including multidimensional child poverty indicators. These adjustments ensure that children who benefit from social security programs are those with the most need or most deprived children.

Improving the child-sensitive social security system: The improvements in child poverty identification proposed in this report should be seen as a step towards moving towards a social security system. The association can guarantee all essential needs of all children. Such a social security system will be designed to ensure that every child receives the support they need to fulfill their potential according to the standards outlined in the CRC.

4.4. Proposed roadmap

In order to ensure that MDCP children can have access to social security and protection programs, these children need to be identified in the list of poor children or poor households in the near future. The identification of multidimensional poor households for the period 2021-2025 should be designed to include indicators that reflect child deprivation such as access to education, health, labor and protection. Inclusion of child indicators increases the possibility that households with poor and vulnerable children are identified as the poor.

In the future, the integration of child poverty indicators into multidimensional poverty needs to be analyzed in more detail using data from new VHLSSs in 2016 and 2018. Data on indicators related to child nutrition, high, weight or diet of the day should be considered to be included in the VHLSS 2018 and 2020 questionnaires to better measure multidimensional poverty. Field pilots can be conducted before finalization of the poverty identification toolkit for the period 2021-2025. Several important milestones are summarized as follows:

Year 2018:

- Design of multidimensional child poverty instruments; present results at the Mid-term Review of the National Targeted Program for Poverty Reduction

and propose these methods and instruments to the Government for the multi-dimensional child poverty.

- Update multi-dimensional child poverty analysis using the 2016 VHLSS. Analysis of options for integrating the multi-dimensional child poverty indicators into the multi-dimensional poverty for the period 2021-2025.
- Discuss and consider additional questions on child indicators, especially child nutrition and protection, and include them into VHLSS 2018 and 2020.

Year 2019:

- Conduct research on different weights instead of equal weights attached to indicators and dimensions in MDP.
- Conduct pilot test of multidimensional poverty instruments, which already include multidimensional child poverty indicators.

Year 2020:

- Complete and submit the list of child poverty dimensions and indicators to the Government for issuance of the multidimensional child poverty line and child poverty measurement.

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Appendix

Table 10: Definition of indices and threshold deficiencies in old and new MDCP methods

DOMAIN/ Indicator	Current MDCP Indicator	Proposed Indicator	Weight	Comment / Proposed change
NUTRITION	**-**		**1/9 (current 0)**	In this version, we look at nutritional outcomes, rather than intake of food. This takes into account differences in metabolism and environment, etc.
Underweight	-	Chd (0-4 yrs) with weight for age < 2 stdev from international median or chd (5-15) with BMI<age appropriate threshold	1/9*1/3 (current 0)	Threshold: use WHO standard for each age.
Stunting	-	Chd (0-4 yrs) with height for age < 2 stdev from international median	1/9*1/3 (current 0)	This indicator considers the long term effect of chronic under nutrition on child development.
Overweight	-	Chd (0-4 yrs) with weight for age > 2 stdev from international median or chd (5-15) with BMI>age appropriate threshold	1/9*1/3 (current 0)	This indicator aims to take into account new nutritional issues related to Vietnam's transition from low to middle income country. Threshold: use WHO standard for each age.
HEALTH			**1/9 (currently 1/7)**	
Untreated illness	-	Chd (0-15 yrs) had symptom of pneumonia, diarrhoea or malaria in the past 2 weeks, but did not get appropriate medicine	Proposed: 1/9*1/3 (current: 0)	This indicator looks at the most common causes of mortality amongst children.
HIV	-	Chd (0-15 yrs) has at least one parent with HIV or has tested positive for HIV	1/9*1/3 (current: 0)	This issue is on the increase according to the CCA, as a result of urbanisation, trafficking, etc.
Vaccination	-	Chd (0-4 yrs) is update with vaccinations	Proposed: 1/9*1/3 (current: 0)	This indictor looks at vaccination for children under 5.
EDUCATION			**1/9 (current: 1/7)**	
Special needs	-	Chd (5-15 yrs) not receiving education meeting their specific needs	Proposed: 1/9 * 1/3 (current: 1/7 * 1/2)	Specific needs includes 5 hrs/ week of native tongue teaching for ethnic minorities, and specialised education for persons with disability.
Learning	-	Chd (5-17 yrs) does not achieve minimum curriculum-based grade standards in core grade subjects	Proposed: 1/9 * 1/3 (current: 1/7 * 1/2)	This indicator focuses on learning rather than on whether the child is in school. Minimum: the threshold for passing and the type of test should be determined by the ministry of education (e.g. PISA test)
ECD	-	Chd (0-4 yrs) does not achieve age-appropriate ECD milestones	Proposed: 1/9 * 1/3 (current: 0)	Milestones: counting to 10, reading 10 words, etc. (to be defined by ministry of education)
HOUSING			**1/9 (current: 1/7)**	No change compared to MICS/ DHS index (see above)
WASH			**1/9 (current 1/7)**	
Water access	-	Chd (0-15 yrs) living in a dwelling without safe drinking water (> 30 mins return from nearest source)	1/9 * 1/4 (current: 1/7 * 1/2)	No change compared to MICS/ DHS index (see above)
Sanitation	-	Chd (0-15 yrs) living in a dwelling without hygienic sanitation or using shared toilet	1/9 * 1/4 (current: 1/7 * 1/2)	No change compared to MICS/ DHS index (see above)
School latrines	-	Chd (0-15 yrs) in school that has separate toilets for girls/ boys.	1/9 * 1/4 (current: 0)	No change compared to MICS/ DHS index (see above)
Environment		Chd (0-17 yrs) in hhd reporting worsened living conditions due to environmental reasons.	1/9 * 1/4 (current: 0)	Environmental: droughts, floods, pests, and harvest loss affect agricultural, forestry and fisheries production, decrease in arable land surface, aquaculture.

INFORMATION	**-**		**1/9 (current 0)**	No change compared to MICS/ DHS index (see above)
Telecom	-	Chd (0-15) living in house with no phone/ internet	1/9 * 1/4 (current 0)	No change compared to MICS/ DHS index (see above)
Internet	-	Chd (5-15) has used internet at least once in the past month	1/9 * 1/4 (current 0)	No change compared to MICS/ DHS index (see above)
Information	-	Chd (5-15 yrs) has age-appropriate awareness of relevant non-academic information.	1/9 * 1/4 (current 0)	This indicator focuses on awareness rather than access to information or availability of assets. Age appropriate questions to be determined by UNICEF/ ministry of education.
Rights	-	Chd (5-15 yrs) has age-appropriate awareness of his/her basic rights as per the CRC.	1/9 * 1/4 (current 0)	Age appropriate questions to be determined by UNICEF/ ministry of education.
CHILD LABOUR			**1/9 (current 1/7)**	
Outside household	Chd (5-15 yrs) that worked outside the household for employer or self-employed in past 12 months	Chd (5-15 yrs) that worked outside the household for employer or self-employed in past 12 months	Proposed: 1/9*1/2 (current: 1/7*1/2)	No change proposed.
Inside household	Chd (5-15 yrs) working in family/ hhd for more than 4hrs/ d.	Chd (5-15 yrs) working in family/ hhd for more than 4hrs/ d.	Proposed: 1/9*1/2 (current: 1/7*1/2)	No change proposed.
LEISURE			**1/9 (current: 1/7)**	
Play	-	Child spends less than 30 minutes per day in structured play (0-4 yrs)	Proposed: 1/9*1/4 (current 1/7*1/2)	Exact time threshold should be provided by UNICEF/ ministry of education
Reading	-	Parent spends less than 30 minutes per day reading or singing with the child (0-4 yrs)	Proposed: 1/9*1/4 (current 1/7*1/2)	Exact time threshold should be provided by UNICEF/ ministry of education
Sport	-	Chd (5-17 yrs) participated in at least one organised sporting activity in the past month	Proposed: 1/9*1/4 (current 0)	Organised: School, club, community, etc.
Culture	-	Chd (5-17 yrs) attended at least one cultural event in the past year	Proposed: 1/9*1/4 (current 0)	Event: theatre, concert, cinema, dance, exhibition, etc.
PROTECTION			**1/9 (current: 1/7)**	
Birth registration	Chd (0-4 yrs) with no birth registration	Chd (0-4 yrs) with no birth registration	Proposed: 1/9*1/5 (current 1/7*1/3)	No change proposed.
Migration	Chd (0-15 yrs) with non-registered migrant worker parents	Chd (0-15 yrs) with non-registered migrant worker parents	Proposed: 1/9*1/5 (current 1/7*1/3)	No change proposed.
Violence	-	Child (5-15 yrs) has experienced violence from an adult in the household.	1/9*1/5 (current 0)	Violence: push, slap, throw, twist arm, pull hair, punch, hit, kick, drag, choke, burn, sexual act, weapon.
Child marriage/ pregnancy	-	Child (10-15 yrs) is currently married / cohabitating or has been pregnant	1/9*1/5 (current 0)	As per CRC.
Trafficking	-	Child (0-17 yrs) has been a victim of trafficking / child prostitution	1/9*1/5 (current 0)	This is a new issue highlighted by the CCA, related to Vietnam's transition from low to middle income country. Trafficking: sexual exploitation, forced begging, forced marriage, and sale of virginity