CHILD MULTIDIMENSIONAL POVERTY IN THAILAND

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Director
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FOREWORD: NESDC

Thailand has transformed into ageing society since 2005 and will become aged society by 2021. After which, the proportion of the elderly will continue to increase and comprise almost 30 percent of the total population in 2036, whereas that of children and working-age population will continually decrease. Such changes in the population structure reflect the need to develop human capital, especially children who are the most valuable assets for a country's future development, to its full potential. This includes eradication of child poverty in order to ensure that all children have equal opportunity for development to become a quality Thai citizen in the future.

Thailand's 20-year National Strategy (2018–2037) heavily emphasizes human resource development. This is expressed in Human Capital Development and Strengthening Strategy. The strategy includes addressing current concerns on human resource development, as well as promoting and enhancing developments that focuse on human capital development and relevant factors in order to create an ecosystem that is conducive to comprehensive human resource development. In addition, Social Cohesion and Equity Strategy underlines creating fair and equal economic and social systems. This is to ensure that everyone is included and have fair access to public services, such as public health services and education. All of which are important tools for human development.

Office of the National Economic and Social Development Council (NESDC), in collaboration with UNICEF Thailand, has developed a Child Multidimensional Poverty Index or a Child MPI. It is hoped that the Child MPI will be a measuring tool for child poverty and deprivations beyond traditional monetary poverty. Since the monetary aspect alone may not be able to reflect all deprivations on factors that are crucial for child's development. The NESDC very much hopes that this report on Measuring Child Multidimensional Poverty in Thailand will provide helpful information for monitoring the deprivations of young people, and this will ultimately lead to policy formulation to tackle poverty among the children in all its forms. Once deprivations are eradicated, children will be able to develop to their full potential and become an important driving force for the future of Thailand.

Professor Dr. Thosaporn Sirisumphand
Secretary General
National Economic and Social Dvelopment Council

FOREWORD: UNICEF-Thailand

The adoption of the Sustainable Development Goals in 2015, marked the pledge by all United Nations Member States, including Thailand, to ensure that "no one will be left behind". Member states committed to achieve the 17 goals and 169 targets "for all nations and peoples and for all segments of society" and to "endeavor to reach the furthest behind first".

The principle of leaving no one behind is a key prerogative from a human rights perspective: it calls for a society where all its members - regardless of who they are and where they are from- have equal opportunity to grow to the fullness of their potential. It is also an economic prerogative for growth: evidence is unequivocal that providing equitable opportunities to access quality services for all members in the society can boost economic growth by promoting human capital development and social mobility. An equitable society is underpinned by more effective and efficient public spending focused on the improvement of the quality of services for all.

In achieving the vision of leaving no one behind, one of the most critical steps is to establish a reliable mechanism that can credibly identify those who are most deprived, and beyond the traditional and limited monetary view of poverty. Poverty, especially in an upper middle-income country like Thailand, has a complex, dynamic and multifaceted nature and as such requires a new approach for measurement. The Multidimensional Poverty Index (MPI) for children aims to offer new optics into poverty: a reliable, detailed and nationally owned measure of those who are left behind, based on nationally-defined sets of dimensions and indicators that reflect the country context. In Thailand, this comprehensive approach to poverty goes well beyond simply looking at the monetary dimension of poverty and offers a huge potential to serve as a central tool for monitoring, budgeting and policymaking to ensure that the policy goal of leaving no one behind is actually met.

The child MPI, presented in this report, shows the tremendous progress made by Thailand to agree and adopt a national measure for multi-dimensional child poverty. Such a step shows great vision and leadership of the Royal Thai Government to look at poverty in a new way. It also recognizes its commitment to further invest into child rights and human capital development, which is critically important for the future prosperity and growth of Thailand as a high-income country. The analysis presented in this report offers a robust example to other countries in the region seeking ways to meet the vision of no one left behind.

It has been a privilege for UNICEF-Thailand to be part of the process under the impressive leadership of the National Economic and Social Development Council, with the technical support from Oxford Poverty and Human Development Initiative (OPHI). The child MPI will undoubtedly offer the policymakers of the Royal Thai Government (RTG) an important tool for decision making, leading to further investment in the human capital development of the most vulnerable population within the Thai society.

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Representative
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TABLE OF CONTENTS

EXECUTIVE SUMMARY

Introduction

Poverty reduction and achieving social equity are among the priority national goals for Thailand. Monetary poverty measurement has shown a significant reduction in poverty over the past several decades. However, poverty still remains, and children in Thailand have a particularly high risk of being poor.

The Sustainable Development Goals (SDGs) call for a multidimensional measure of poverty to complement the monetary poverty analysis and present a more comprehensive picture of poverty. Specifically, SDG 1.2 aims to 'reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions'.

This report presents a Child Multidimensional Poverty Index (Child MPI) for Thailand. The Child MPI was developed to capture key aspects of deprivation for children aged 0–17 years. Understanding multidimensional child poverty will allow policymakers and other relevant stakeholders to make the most effective investments in order to build human capital, reduce inequality, and eliminate poverty in all its dimensions for now and for the future. With these objectives in mind, Thailand has undertaken a nationally-driven process to develop this Child MPI under a cooperation between the National Economic and Social Development Council (NESDC) and the United Nations Children's Fund (UNICEF) Thailand Country Office, with technical support from the Oxford Poverty and Human Development Initiative (OPHI) and the UNICEF Thailand Country Office. Under this partnership, OPHI and UNICEF have engaged throughout the process to provide technical support to establish a rigorous measure that captures multidimensional child poverty in Thailand. To ensure the routinization and institutionalization of the child poverty measure, two five-day technical training sessions were held in Thailand to build the national capacity in computing the child MPI as well as to analyse and present the results. This report is a result of the collaborative national process to develop a Child MPI for Thailand.

Child MPI in Thailand

The Child MPI for Thailand was developed nationally to reflect the Thai context and needs based on the inputs from relevant government agencies, academia, and Non-Governmental Organizations (NGOs). It is based on the Alkire-Foster method of multidimensional poverty measurement, uses data from the Multiple Indicator Cluster Survey (MICS) 2015/16, and is composed of four dimensions (education, child welfare, living standards, and health) and ten indicators, based on data availability and national priorities.

The Child MPI includes dimensions and indicators that capture deprivations for children and households with children. Some indicators are adjusted to capture the different needs over the life cycle (e.g. education and child welfare), while others apply the same definition for the entire age range (e.g. access to water). The Child MPI is an individual measure of child poverty, so the child is the unit of identification and analysis. Statistical tests were performed to validate the measure's robustness and significance of the findings at the national, regional and district level.[1] It should still be acknowledged that since multidimensional poverty measurement can only use one single data source (in the case of Thailand, the MICS), the Child MPI will only be able to measure indicators available from the dataset. Consequently, it is worth noting that some critical dimensions for child development, such as quality of education or quality of care, are not featured in the Child MPI due to data constraints. Policy recommendations to reduce multidimensional poverty should thus not only exclusively focus on the featured indicators but should also consider other sources of information to develop a comprehensive response.

Multidimensional Poverty in Children: Level and Composition

Results based on data for 2015/16 indicate that the percentage of children living in multidimensional poverty in Thailand was 21.5%. That is, more than one in every five children in the country was living in multidimensional poverty. The intensity of poverty or the average number of deprivations face by children in Thailand was 34.7%, meaning that, on average, each poor child experienced more than one-third of the possible weighted deprivations. The Child MPI, which is computed by multiplying the incidence (percentage of children living in multidimensional poverty) and intensity (average number of weighted deprivations faced by poor children) of multidimensional poverty, was 0.075, thus multidimensionally poor children face on average 7.5% of all possible deprivation in Thailand if all children were multidimensionally poor and deprived in all indicators.

Poverty tended to be higher in rural areas (23% of children identified as poor) compared to urban areas (19%). The Northeast (25.6%) and North (23.2%) regions had the highest incidence of multidimensional poverty. Given the large population size in the Northeast region, it is estimated that 38% of multidimensionally poor children live in the Northeast. Provincial-level analyses are also provided for the 14 provinces permitted by the dataset, many of which had higher than average rates and incidences of multidimensional poverty. Of those 14 provinces, Kalasin had the highest incidence of poverty (40.2%) while Mae Hong Son had the highest intensity (40.6%) and Pattani had the highest overall MPI (0.141). These results reveal that some provinces have a higher percentage of poor children, while others have children facing a higher number of deprivations. While the poverty rate or poverty incidence are often used as main indicators to guide policy intervention, the results show the importance of also looking into the depth of poverty at provincial level, as provinces with a high intensity of poverty may not be given full policy attention if their poverty rate is not among the highest. For provinces with a high intensity of poverty, it is critical to further understand the profile of those who are 'left behind' and analyse if current policies and programmes could be strengthened to address the inequity.

1 For the 14 provinces of the Multiple Indicator Cluster Survey (MICS).

Nationally, education was the dimension that contributed the most to child poverty with 41.7% (defined as: availability of books for children aged 0–2 years, engagement in learning activities for children aged 3–4 years, and school attendance for children aged 5–17 years), followed by nutrition with 15.1% (defined as: never breastfed for children aged 0–6 months, wasted or stunted for children aged 6 months–5 years, and salt iodization for children aged 5–17) and health prevention with 15.0% (defined as: vaccination for children aged 0–4 years, handwashing for children aged 5–14, and sexuality education for children aged 15–17). These findings reveal the different priorities that each age group faces and provide vital information to policy makers to design and implement public policies and programmes to reduce poverty and deprivation in every age group.

Factors associated with Child Multidimensional Poverty

Children aged 0–4 years were the poorest group by MPI, with a poverty rate of 41.6%, where higher levels of poverty are given by the high levels of deprivation on the learning indicator. On the other hand, older children were more likely to have a higher intensity of poverty. For example, the adolescent age group faces higher risk of school dropout or early marriage, resulting in some adolescents facing multiple deprivations across dimensions and indicators driven by vicious cycle of poverty. Boys (23.6%) were more likely to be poor than girls (19.3%), though the composition and intensity of their poverty was similar, and older siblings were less poor than the youngest siblings, with poverty rates of 19.0% and 27.7%, respectively. The education of the household head was one of the strongest predictors of child poverty, with higher levels of education associated with much lower levels of poverty. Children who lived in a household in which the head of the household spoke Thai were significantly less likely to be poor than those in households where the head spoke another language (20% to 36%). Larger households were also associated with higher levels of child multidimensional poverty.

Trends in Child Multidimensional Poverty

Using an adjusted measure to compare across time shows that child poverty decreased more than six percentage points from 2005/06 to 2015/16. The intensity and MPI have also decreased, and all changes are statistically significant. The largest improvements were found in nutrition and asset ownership. Poverty decreased in every region except for the Northern region, in which there was a slight, but not statistically significant, increase in poverty. The Northeast region saw the greatest decrease in poverty, meaning that that province is ‘catching up’ and the differences among regions have reduced.

Conclusion and Recommendations

While Thailand has made tremendous progress in reducing monetary poverty, the results from this report show that more than 20% of children in Thailand are still multidimensionally poor. This figure has decreased since 2005/06, but challenges still exist. In particular, deprivations that were able to be measured in education and health dimensions remain high.

Policymakers are encouraged to use the findings from this report to guide their policy decisions in order to improve the well-being of children in Thailand for today and the future. This child poverty measure was constructed to reflect the particular priorities of Thailand, including its National Strategies, Twelfth National Economic and Social Development Plan, and the Sustainable Development Goals, and can be used to monitor progress towards those goals. Institutionalization of the Child MPI at the highest levels of government will help build accountability for child poverty reduction. It is important that different sectors and stakeholders coordinate actions to reduce child multidimensional poverty, considering that child poverty is created by a combination of different deprivations, which vary according to age group and other important individual and family characteristics.

The disaggregation of the Child MPI by region, area and district also provides vital information which can be used to prioritize the needs of children from different age groups and sex living in each of these areas. It is important to analyse policies currently implemented in the country and set targets to reduce deprivation for different indicators, which are related to those policies.

Dissemination to all stakeholders is key to ensuring that the measure is actively and effectively used. Uses may include budget allocation to regional or sectoral areas based on the needs of children of different ages highlighted in this report. These Child MPI findings should be complemented with a National MPI that assesses the multidimensional poverty situation of all of Thailand's population, regardless of age.

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CHAPTER 1: INTRODUCTION

This chapter serves as an introduction to the report on the Child Multidimensional Poverty Index (Child MPI) of Thailand and contains the following sections:

1.1. History of Poverty Measurement in Thailand
1.2. Context and Framework
1.3. Purpose of Thailand's Child MPI

1.1. History of Poverty Measurement in Thailand

Historically, Thailand has mainly used monetary poverty measures to understand its poverty levels. By monetary measures, Thailand has experienced a drastic decrease in poverty over the past decade. Using the World Bank's $1.90 per day measure, poverty reduced from 0.7% in 2006 to 0.0% in 2015.[2] Using the national poverty line,[3] poverty declined from 21.9% in 2006 to 7.2% in 2015. Thailand graduated from a lower-middle income economy to an upper-middle income economy in 2011. According to the National Economic and Social Development Council (NESDC), monetary poverty is now mainly concentrated in the South (13.8%) and Northeast regions (17.04%), with a widening poverty gap between rural and urban areas.[4] This finding is also reflected in the World Bank's small area poverty maps, in which over two-thirds of the sub-districts in the Northeast showed a poverty incidence that was at least 50 per cent more than the national average.[5]

Multidimensional poverty is a relatively new concept in Thailand. The 2015 Millennium Development Goals (MDG) report by the NESDC includes recognition that 'the notion of poverty also includes additional social dimensions, making it necessary to consider poverty in a holistic manner'. NESDC created a Multidimensional Poverty Index (MPI) for the report in an attempt to consider these various other aspects.[6] This measure is composed of five dimensions (education, health, living conditions, opportunity to access state services, and economic status) and fourteen indicators.

The Thai government has not historically computed a separate poverty measure for children, though they have disaggregated existing poverty measures by age for analysis. The Thailand Development Research Institute and UNICEF Thailand prepared a report in 2012 that analysed child deprivation in Thailand using the Bristol method, adjusted for different deprivation categories (nutrition, child health, reproductive health, child development, education, environment, child protection, and child vulnerability). The composite index found that 49.16% of households were moderately deprived and 4.96% were severely deprived.[7]

2 World Bank, 'World Development Indicators', http://databank.worldbank.org/data/source/world-development-indicators (last accessed: 16 August 2019).
3 The national poverty line is defined by NESDC
4 NESDC. (2015). 'Millennium Development Goals 2015: MDGs Thailand 2015'.
5 Jitsuchon, S. & Richter, K. (2007). 'Thailand's Poverty Maps: From Constriction to Application', in (T. Bedi, A. Coudouel, & K. Simler, eds.), *Using Poverty Maps to Design Better Policies and Interventions*, pp. 241-260, Washington, DC: World Bank.
6 NESDC. (2015). 'Millennium Development Goals 2015: MDGs Thailand 2015'.
7 Thailand Development Research Institute and UNICEF Thailand. (2012). 'Child Deprivation in Thailand'.

1.2. Context and Framework

The Sufficiency Economy Philosophy, bestowed by H.E. King Bhumibol Adulyadej in 1974, made its mark on Thai society, becoming the guiding principle of the country's development strategy. It emphasizes a secure lifestyle based on the principle of self-resilience, sufficiency and awareness of reason with good internal immunity. Since the Eighth National Economic and Social Development Plan (1997–2001), Thailand's goal has been to achieve 'people-centred development', deploying economics as a tool to help people achieve greater happiness and a better quality of life. However, the implementation of the Eighth Plan was in a period when Thailand confronted an economic crisis. The Ninth National Economic and Social Development Plan (2002–2006) also adopted the Sufficiency Economy Philosophy, placing major emphasis on the balanced development of human, social, economic, and environmental resources in order to achieve real sustainable people-centred development.

The Tenth National Economic and Social Development Plan (2007-2011) pursued a Green and Happiness Society under the direction of the Sufficiency Economy Philosophy. The mission for human development was to enable people to have knowledge of world standards, good health, live in warm families and strong communities, be capable of self-reliance, and pursue their lives with integrity, security and dignity, within a balanced diversity of culture, natural resources, and the environment. The Tenth Plan placed more emphasis on social harmony and sustainable co-existence. The Eleventh National Economic and Social Development Plan (2012-2016) continued to implement the key elements of the Sufficiency Economy Philosophy. Once again, it aimed to place people at the centre of development, and promote balanced development in all aspects. The plan included human and social development towards achieving a quality society.

At present, Thailand is implementing the Twelfth National Economic and Social Development Plan (2012-2017). The period of the Twelfth Plan has been an extremely challenging time for Thailand to undertake substantial reforms as persistent levels of income inequality remain, and there are still gaps in the knowledge, skills, qualities and attitudes needed to realize the country's development potential. Moreover, the size of the working-age Thai population started to decline in 2015, resulting in labour shortages, and the population structure will reach a definitional 'aged society' by the end of the Twelfth Plan.

Resolving poverty and inequality is an urgent issue to be tackled during this Plan. The fundamental cause lies in geographical disparities in the quality of social services, an imbalanced economic structure, uneven distribution of development opportunity and unequal access to justice. Moreover, there are relatively few opportunities for the population living in remote areas to access relevant information, knowledge, financial sources and quality social services. This will tend to bring more risks in the future where rapid technological advancement takes place in every aspect of life, creating wider inequality. Hence, human resource development in the Twelfth Plan emphasizes: (1) promoting physical and mental health among young children to allow them to have sound neural and cognitive development, as well as enhancing their life skills in order to become a valuable asset for the country; (2) socializing the population to have better moral standards consistent with social values and norms; (3) developing necessary skills and knowledge in each age span in order to lay a firm foundation for creating well-rounded citizens; (4) preparing the workforce in the field of science and technology to significantly shape the future of the country; (5) promoting educational excellence at all levels; and (6) promoting a healthy population. To create a just society and reduce inequality, the emphasis is on improving the quality of social services throughout the country, particularly those that concern education and public health. Also, gaps in social protection should continue to be closed, along with the enhancement of labour skills and the implementation of labour policy, to improve labour productivity and income.

The Twelfth Plan is aligned with the master national strategy. The National Strategy (2018–2037) is the country's first national long-term strategy developed pursuant to the Constitution. Its vision is for Thailand to become 'a developed country with security, prosperity and sustainability in accordance with the Sufficiency Economy Philosophy' with the ultimate goal being all Thai people's happiness and wellbeing. There are six key strategies: (1) national security; (2) national competitiveness enhancement; (3) human capital development and strengthening; (4) social cohesion and just society; (5) eco-friendly development and growth; and (6) public sector rebalancing and development. Human development is related to the Strategy for Human Capital Development and Strengthening, which aims to develop Thai people of all ages in a multidimensional manner to become good, skilful, and quality citizens. In addition, the Strategy for Social Cohesion and Just Society puts forward key development guidelines to mitigate inequality and create multidimensional justice, leading to the eradication of inequality in terms of income and public service access, and progress in human capital development.

In the past two decades, Thailand has experienced periods of high economic and social growth followed by periods of stagnancy in its levels of development. The country achieved most of the Millennium Development Goals (MDGs) ahead of schedule and even set more ambitious MDG+ targets, many of which were also achieved by 2015.[8] Despite these gains, the 2015 MDG report states that 'minors (aged 0–14) are the group most frequently living in poverty' and finds that youths have a monetary poverty rate of 14.43%, compared to 8.53% for people aged 15–59 and 10.53% for the population as a whole. However, when considering children aged 0–17 years, significant improvement occurred over the years, with more than 2 million fewer children living in poverty in 2014 than in 2012.[9]

1.3. Purpose of Thailand's Child MPI

Thailand's Child MPI seeks to understand the key aspects of child poverty in the Thai context. It will be used for several purposes: reporting the child component of SDG 1.2 (by 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions); monitoring of relevant national strategies and plans, including those described above; and giving guidance on cross-sectoral planning and poverty reduction policymaking, potentially including budget allocation or other forms of targeting.

8 NESDC. (2015). 'Millennium Development Goals 2015: MDGs Thailand 2015'

9 NESDC. (2015). 'Millennium Development Goals 2015: MDGs Thailand 2015'.

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CHAPTER 2: METHODOLOGY

Thailand's Child MPI is estimated using the Alkire-Foster method. This chapter presents the Alkire-Foster method in general terms along with the measurement design and dataset used in this particular application; Appendix 1 has a more formal treatment. This chapter covers:

2.1. Alkire-Foster Method
2.2. Thailand's Child MPI: Measurement Design
2.3. Data for Analysis: MICS 2015/16
2.4. Deprivation Levels in each Indicator of the Child MPI (Uncensored Headcount Ratios)

2.1. Alkire-Foster Method

Thailand's Child MPI uses the Alkire-Foster method. In this method, a poverty profile is constructed for each child. This profile shows in which of the indicators considered in the measure a child is deprived, according to national definitions. Next, the deprivations are aggregated for each child into a weighted deprivation score. The weights reflect normative judgements and accord equal importance to each of the four dimensions: education, health, living standards, and child welfare. Each child is then identified as poor or non-poor, depending on whether their deprivation score is less than a poverty cutoff (non-poor), or meets or exceeds the poverty cutoff (poor).

To estimate the Child MPI, information on the poor is aggregated into the adjusted headcount ratio or MPI. The MPI combines two aspects of poverty:

MPI = H x A

1) **Incidence (H)** ~ the percentage of children who are poor, or the poverty rate or headcount ratio.
2) **Intensity (A)** ~ the average percentage of indicators in which poor children are deprived, or the average deprivation score of poor children.

The Child MPI can be equivalently computed as the weighted sum of censored headcount ratios – which show the percentage of children who were identified as poor and are deprived in an indicator. Because of this structure, the Child MPI can be broken apart by indicators to show the composition of poverty. This feature of dimensional detail brings added policy relevance to the analysis. The Child MPI can also be disaggregated by relevant subpopulation groups, such as gender, age groups, urban/rural areas, etc.

2.2. Thailand's Child MPI: Measurement Design

Thailand's Child MPI utilizes a set of dimensions, indicators, and cutoffs that reflect Thailand's priorities as expressed in the Twelfth National Economic and Social Development Plan. The unit of identification of the Child MPI in Thailand is the child (0 to 17 years).

2.2.1. Dimensions, Indicators, and Cutoffs

The four dimensions and 10 indicators of Thailand's Child MPI are a result of the consultation process. The dimension of education includes one indicator (learning environment) with deprivation cutoffs according to age group. For example, a child younger than 3 years is considered deprived if he or she does not have at least one book in the household, children aged 3–4 are considered deprived if they do not do at least four of the seven possible learning activities with adults, and children aged 5– 17 years are considered deprived if they do not attend school. This indicator reflects the importance of learning and education across age groups. In the case of children under the age of 3, to own a book in the household is a proxy of learning possibilities for a child; for children aged 3–4 years, doing learning activities with their parents or carers is a proxy of receiving physical and mental stimulation to reach their highest potential; and for children aged 5 years and above, school attendance captures deprivation in access to a learning environment.

Two indicators were included in the health dimension (nutrition and health prevention). The first indicator considers a child as deprived if he or she is younger than 6 months and has never been breastfed, or he or she is aged 6–59 months (younger than 5 years) and is wasted or stunted. Children older than 4 years are considered deprived if iodized salt is not used in their houses. The three aspects captured in this indicator are related to the barriers faced by children in different age groups in accessing the minimum nutritional requirements. In the indicator of health prevention, children younger than 5 are considered deprived if they have not received all the vaccinations according to their age, children aged 5–14 years old are deprived if their household does not have a place for handwashing with water and soap, and, finally, children aged 15–17 years are deprived if they have not had access to sexuality education. Children deprived in this indicator face different health risks according to their age which can have negative effects on their future.

The dimension of child welfare includes two indicators, with different deprivation cutoffs depending on the age group. The first indicator is child protection, which aims to capture aspects of risk related to the wellbeing of the child. In this indicator, children under 1 are considered deprived if they do not have birth registration. In the case of children aged 2–14 years, the deprivation captures severe physical violence; in this case, a child is deprived if he/she or any other child aged 2–14 years living in the household is or has been beaten as hard as the adult could or hit or slapped on the face, head or ears. Finally, in the case of children aged 15–17 years, the child is considered deprived if he/she is married or was married before. The second indicator is living conditions, which covers aspects related to family environment. This indicator identifies a child as deprived if he/she is younger than 5 and was left alone for more than one hour or left in the care of other children in at least one day during the week before the survey. If the child is older than 5 years and lives in a household without both parents, the child is deprived. In this case, if the parents are not alive the child is defined as non-deprived.

Finally, the dimension of living standards includes five indicators: housing, cooking fuel, asset ownership, bank account and access to safe drinking water. Each of these indicators is defined at the household level and aims to capture the minimum level of living standards in each of the indicators. Table 2.1 presents a detailed definition of each of the indicators and deprivation cutoffs included in Thailand's Child MPI.

2.2.2. Weights

Thailand's Child MPI uses nested weights, assigning a weight of 25% to each of the four dimensions. Within health and child welfare, each of the two indicators are again equally weighted (12.5%). Within the living standards dimension, five indicators are used, each of them with a weight equal to 5%. Finally, the dimension of education only includes one indicator with a weight equal to 25%.

Table 2.1 Dimensions, Indicators, Cutoffs, and Weights of Thailand's Child MPI

Dimension	Indicator	Deprivation Cutoff A child is deprived if he/she…	Weight (%)
Education	Learning	is younger than 3 years and does not have at least 1 book, OR is 3-4 years old and does not do 4 or more of the 7 possible activities with the main caregiver, OR is older than 4 and not currently attending school.	25%
Child Welfare	Child protection	is younger than 1 and does not have birth registration, OR is 2 to 14 years old and lives in a household where a child has suffered severe physical violence, OR is 15 to 17 years old and is married or has been married.	12.5%
	Living conditions	is younger than 5 and was left alone for more than one hour in one day or more during the week prior to the survey, OR was left under the care of another child for more than one hour in one day or more, OR is 5 years or older and lives in a household without both parents.	12.5%
Living Standards	Housing conditions	lives in a dwelling whose main floor material is earth/sand, wood planks or other material, OR the main roof material is thatch/palm leaf, wood planks or other, OR the main walls material is cane/palm/trunks, bamboo with mud, plywood, reused wood, or other.	5%
	Cooking fuel	lives in a household where solid fuels are used for cooking and the cooking is done inside the dwelling.	5%

Dimension	Indicator	Deprivation Cutoff A child is deprived if he/she…	Weight (%)
Living Standards	Asset ownership	lives in a household that owns less than 4 assets (radio, television, refrigerator, air conditioner, bicycle and telephone), OR where no car, boat or big motorcycle is owned.	5%
	Bank account	lives in a household where no member has a bank account.	5%
	Safe drinking water	lives in a household without access to a protected source of water.	5%
Health	Nutrition	is younger than 6 months and has never been breastfed, OR is 6 months or older and younger than 5 years and is wasted or stunted, OR is 5 years or older and the household does not used iodized salt.	12.5%
	Health prevention	is younger than 5 years and does not have the full vaccination scheme according to age, OR is 5 years or older and younger than 15 and lives in a household where there is not a place where to wash the hands, OR is aged 15-17 years and has not received sexuality education.	12.5%

2.2.3. Deprivation and Poverty Cutoffs

Two kinds of thresholds are used to decide whether a child is deprived and whether she/he is poor: (a) an indicator-specific poverty cutoff (deprivation cutoff), where a child is considered deprived in each indicator if his or her achievement falls below the cutoff, and (b) a cross-indicator cutoff (or poverty cutoff), which sets the minimum share of deprivations (or deprivation score) needed for a child to be considered poor. In Thailand, the poverty cutoff was set at 25% or one dimension. Thus, in order to be considered multidimensionally poor a child must be deprived in at least one full dimension or the weighted sum of indicators equal or higher than 25%. In this context, a child has to be deprived in indicators from different dimensions or in one or two indicators from the same dimension to be considered multidimensionally poor.

2.3. Data for Analysis: MICS 2015/16

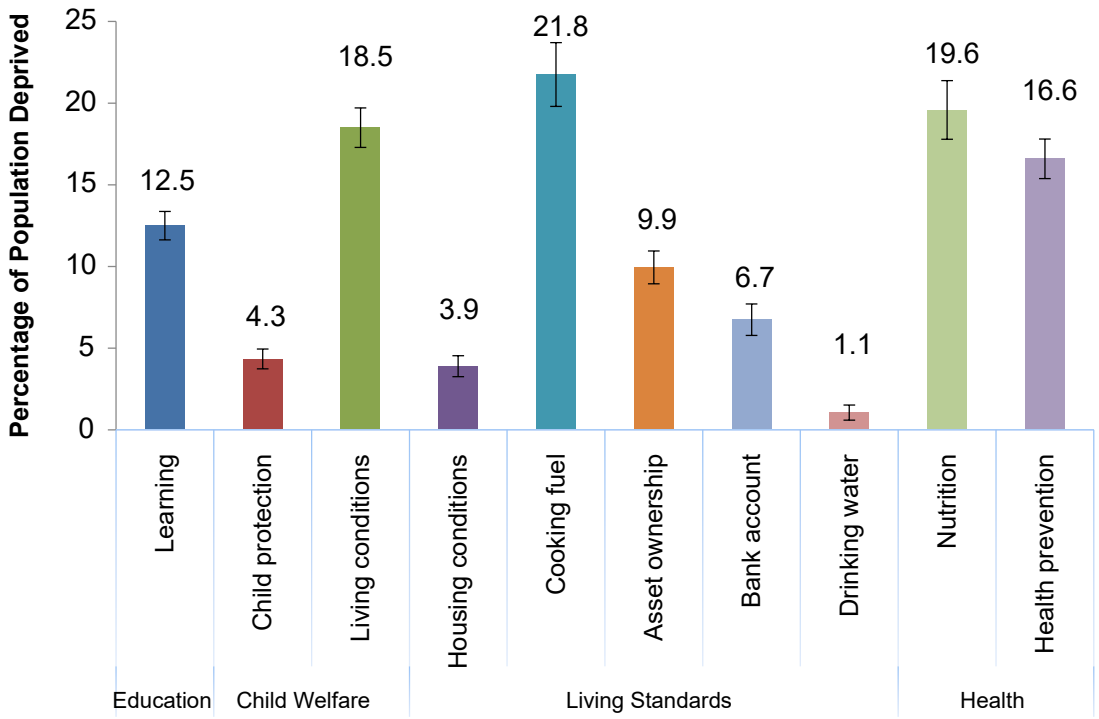
The data used to compute Thailand's Child MPI is taken from the Multiple Indicator Cluster Survey (MICS) 2015/16, which was conducted between November 2015 and March 2016 by the National Statistical Office (NSO). Thailand MICS 2015/16 provides information on the situation of children and women in the country. For comparison purposes, and specifically to show trends over time, the report also used data from MICS 2005/06 and MICS 2012.

MICS 2015/16 was designed to provide information at the national level, for urban and rural areas, and for five regions: Bangkok, Central, North, Northeast and South. The survey also provides an individual estimator for 14 individual provinces. MICS 2015/16 surveyed 28,652 households, including 25,614 women aged 15-49 years, 23,183 men aged 15-49 years, and 12,250 children under 5 years of age. The overall response rates were 96%, 95.6%, and 97% for the individual interviews of women, men and children under 5, respectively.

2.4. Deprivation Levels in each Indicator of the Child MPI (Uncensored Headcount Ratios)

The uncensored headcount ratio of each indicator represents the proportion of children who are deprived in each indicator, irrespective of their poverty status. As Figure 2.1 shows, the highest deprivations of children in Thailand are found in the indicators for cooking fuel (with 21.8% of children deprived in this indicator), nutrition (19.6%), living conditions (18.5%), health prevention (16.6%), and learning (12.5%). Thus, in general, children in Thailand live in households using solid fuel for cooking, or do not receive the right nutrition for their age, or live in a household where they are left alone or do not live with their parents. Some indicators show lower rates of deprivation. In particular, deprivations are lowest for access to a clean source of water (1.1%), revealing that at the national level only a small percentage of children face deprivation in this indicator. Also, only 3.9% of children in Thailand live in a household with inadequate housing material and 4.3% of children in the country are deprived in aspects related to child protection.

Figure 2.1 Deprivation in each MPI indicator (Uncensored Headcount Ratios), 2015/16



Source: Authors' calculations based on data from MICS 2015/16.

CHAPTER 3: RESULTS

This chapter presents the results for Thailand's Child MPI using the MICS 2015/16. It first presents the results of the Child MPI as well as the poverty rate and intensity among poor children. It then presents disaggregated results by geographic region – rural and urban areas, regions, and 14 provinces. The third section presents robustness tests for the choice of weights and poverty cutoffs. This is followed by an analysis of age groups and other individual characteristics. The final section analyses child poverty by characteristics of other household members. This chapter has the following sections:

3.1. Thailand's Child MPI – Key Results
3.2. Disaggregation by Rural and Urban Areas, Regions and 14 Provinces
3.3. Robustness of MPI to Alternative Weights and Poverty Cutoffs
3.4. Performance across Age Groups and Other Individual Characteristics
3.5. Performance across Characteristics of other Household Members

3.1. Thailand's Child MPI – Key Results

Table 3.1 shows Thailand's Child MPI for 2015/16, as well as the incidence of poverty (or the proportion of children identified as multidimensionally poor, H) and the intensity of poverty (or the average proportion of weighted indicators in which the poor children are deprived, A). As can be seen in Table 3.1, the incidence of multidimensional poverty for children is 21.5%. Since this estimate is based on a sample, it has a margin of error. Thus, the 95% confidence interval is also presented in the table. This means that there is 95% confidence that the true multidimensional poverty headcount ratio of the population is between 20.3% and 22.7%.

The average intensity of poverty, which reflects the share of deprivations each poor child experiences on average, is 34.7%. That is, each poor child is, on average, deprived in nearly one and a half dimensions.

The Child MPI, which is calculated by multiplying the incidence and the intensity of poverty, has a value of 0.075. This means that multidimensionally poor children in Thailand experience 7.5% of the total deprivations that would be experienced if all children were deprived in all indicators.

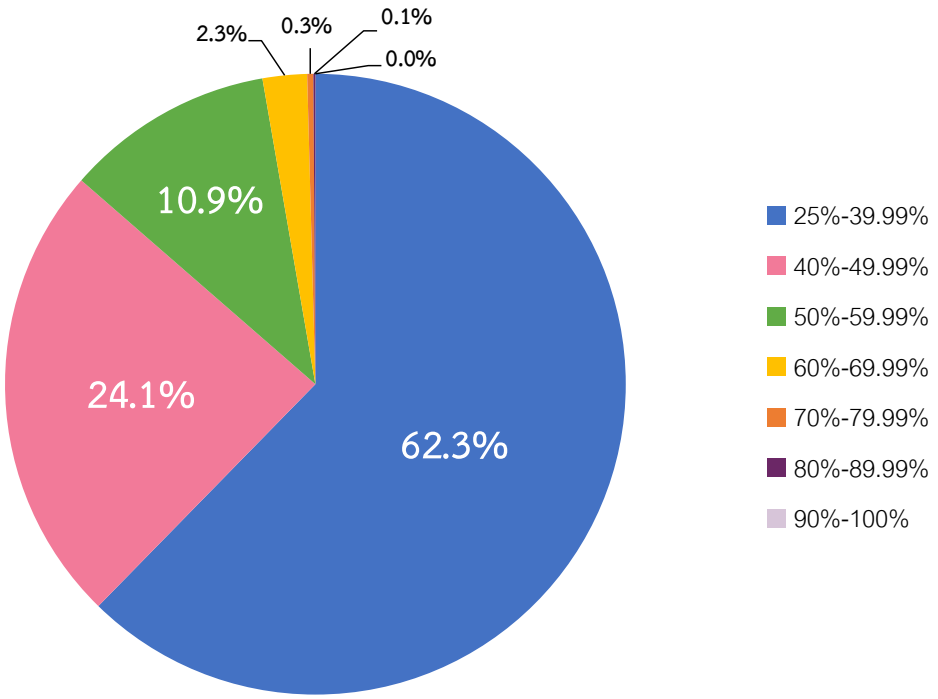
Table 3.1 Incidence, Intensity and Child MPI, 2015/16

Poverty Cutoff	Index	Value	Confidence Interval (95%)	
25%	Child MPI	0.075	0.070	0.079
	Incidence (H, %)	21.5%	20.3%	22.7%
	Intensity (A, %)	34.7%	34.2%	35.2%

Source: Authors' calculations based on data from MICS 2015/16

Figure 3.1 depicts the distribution of the intensity of poverty among the poor. Almost two thirds (63%) of all poor children in Thailand are in the lowest intensity band, which is between 25% and 40% of the weighted sum of indicators, and 87% of poor children have deprivation scores less than 50% of the weighted sum of indicators. This suggests that further progress in the Child MPI could be made quite easily, as most of the poor are very near to the poverty line. About 2.5% of poor children experience intensities higher than 60%.

Figure 3.1 Intensity Gradient among Poor Children, 2015/16



Source: Authors' calculations based on data from MICS 2015/16.

3.2. Disaggregation by Rural and Urban Areas, Regions and 14 Provinces

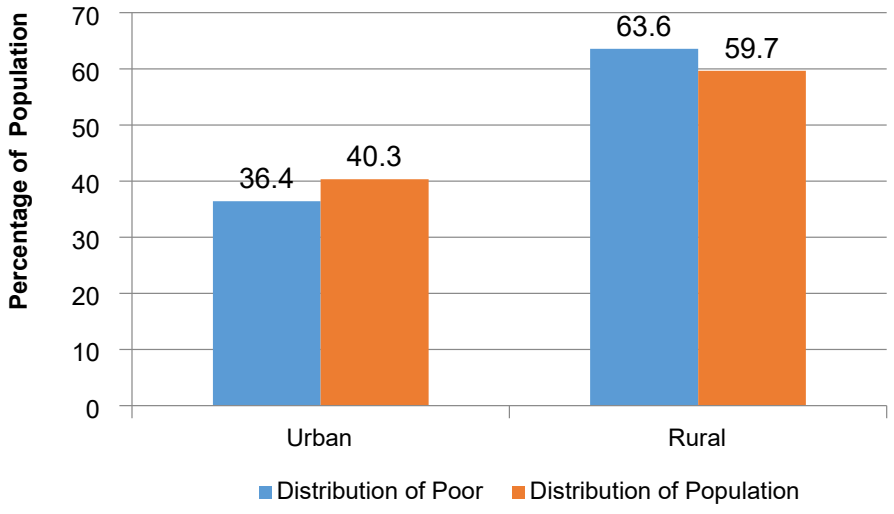
To better understand the distribution of poverty across Thailand, this report now disaggregates the levels of poverty by rural and urban areas and by regions. In Table 3.2, the Child MPI, incidence and intensity of poverty are shown by urban and rural areas. As can be seen in Table 3.2, the rural poverty headcount ratio is higher than that for urban areas – 23% and 19%, respectively. Figure 3.2 compares the distribution of the poor and overall population by area. The distribution of child poverty between rural and urban areas is similar to the distribution of the overall population in both areas, however, rural areas have a higher number of multidimensionally poor children. While rural areas are home to 60% of all children in Thailand, they are home to 64% of multidimensionally poor children. This finding suggests that public policies to reduce multidimensional poverty and deprivation in Thailand should establish actions and programmes to reduce the poverty and deprivation of children living in rural areas.

Table 3.2 Multidimensional Poverty by Rural/Urban Areas, 2015/16

Index	Urban				Rural			
	Population Share (%)	Value	Confidence Interval (95%)		Population Share (%)	Value	Confidence Interval (95%)	
MPI	40.3	0.066	0.060	0.073	59.7	0.080	0.074	0.086
Incidence (H, %)		19.4%	17.6%	21.3%		22.9%	21.3%	24.5%
Intensity (A, %)		34.1%	33.3%	34.9%		35.1%	34.4%	35.7%

Source: Authors' calculations based on data from MICS 2015/16

Figure 3.2 Distribution of Poor and Population by Rural/Urban Areas, 2015/16



Source: Authors' calculations based on data from MICS 2015/16.

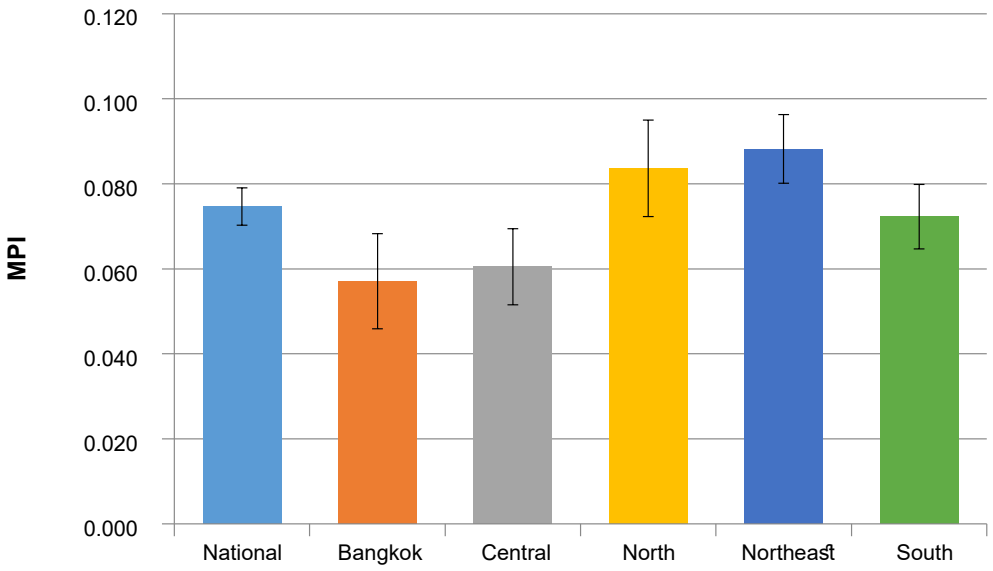
Table 3.3 shows the estimates for the Child MPI, incidence of poverty, and intensity of poverty by region. The broad pattern suggests that the Northeast region has the highest levels of Child MPI and incidence of poverty, and the North region has the highest intensity of child poverty. Figure 3.3 illustrates the level of Child MPI in each of the five regions. Given the overlap of the confidence intervals, no significant differences were found between the levels of child poverty of the five regions. However, it is possible to conclude that the Northeast and North regions are the poorest regions in the country, with the highest incidence and intensity of child poverty.

Table 3.3 Multidimensional Poverty by Region, 2015/16

Sub-National Region	Population Share (%)	MPI			Incidence (H, %)			Intensity (A, %)			Total number of poor children
			Confidence Interval (95%)		Value	Confidence Interval (95%)		Value	Confidence Interval (95%)		
National	100.0%	0.075	0.070	0.079	21.5%	20.3%	22.7%	33.0%	34.2%	35.2%	4,472
Bangkok	9%	0.057	0.046	0.068	17.3%	14.0%	20.6%	33.0%	31.3%	34.8%	322
Central	27%	0.060	0.052	0.069	17.6%	15.0%	20.2%	34.4%	33.1%	35.7%	995
North	16%	0.084	0.072	0.095	23.2%	20.5%	25.9%	36.1%	34.7%	37.5%	784
Northeast	32%	0.088	0.080	0.096	25.6%	23.3%	27.8%	34.5%	33.7%	35.2%	1,702
South	16%	0.072	0.065	0.080	20.6%	18.5%	22.7%	35.1%	34.2%	35.9%	669

Source: Authors' calculations based on data from MICS 2015/16.

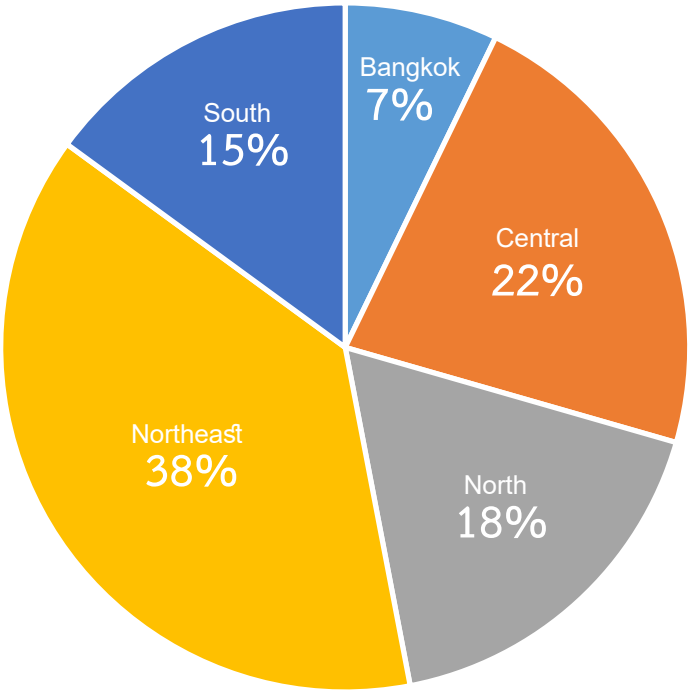
Figure 3.3 Child MPI by Region, 2015/16



Source: Authors' calculations based on data from MICS 2015/16.

Figure 3.4 depicts where MPI poor children live across the five regions. This is important because, depending on the population size of the region, the total number of multidimensionally poor children living in one of the less poor regions can be higher than in the poorest regions. As expected, the Northeast region is home to the largest number of multidimensionally poor children (38%). Although the Central region has one of the lowest levels of child multidimensional poverty, it is home to 22% of multidimensionally poor children in Thailand. As rural areas, the Northeast and North regions should be prioritized in strategies for poverty reduction in Thailand. However, it is also important to recognise that although the Central region does not have the highest incidence of child multidimensional poverty, given the large number of deprived and multidimensionally poor children living in this region, policies should establish programmes and strategies to reduce the number of multidimensionally poor children.

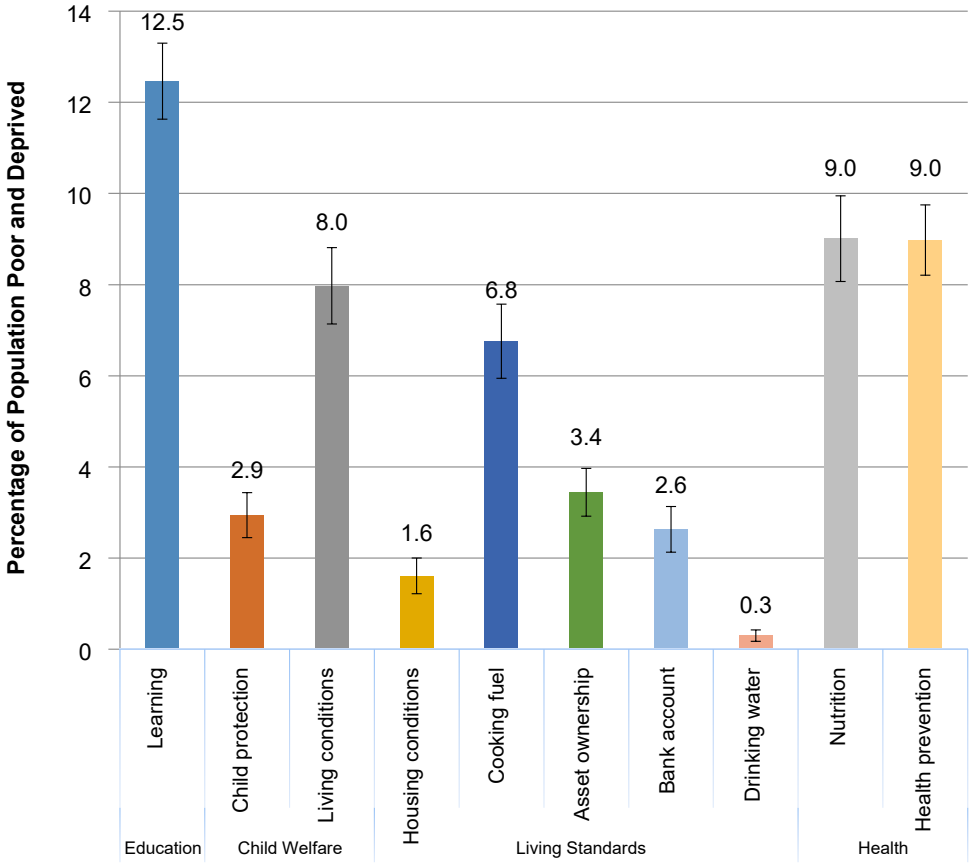
Figure 3.4 Distribution of MPI Poor Children by Region, 2015/16



Source: Authors' calculations based on data from MICS 2015/16.

To understand what deprivations create child poverty in Thailand and how they can be reduced, the Child MPI can be broken down by indicator in order to examine its composition. The censored headcount ratio of an indicator represents the proportion of children aged 0–17 that are multidimensionally poor and also deprived in that indicator. The Child MPI can also be computed as the sum of the weighted censored headcount ratios. Thus, reducing any of the censored headcount ratios reduces multidimensional child poverty. Figure 3.5 shows that the largest deprivation is in learning (12.5%), meaning that 12.5% of Thailand's children are multidimensionally poor and do not have books at home (0-2 years), do not engage in learning activities (3-4 years), or do not attend school (5-17 years). In addition, approximately 9.0% of children are poor and deprived in nutrition and health prevention (vaccination for children aged 0-4, handwashing for children aged 5-14, and sexuality education for children aged 15-17). In addition, 8.0% of children are multidimensionally poor and deprived in living conditions, meaning they live in a household without parents, or are left under the care of another child or alone. On the other hand, the indicators with the lowest censored headcount ratios are safe drinking water (0.3%) and housing conditions (1.6%).

Figure 3.5 Censored Headcount Ratios, 2015/16



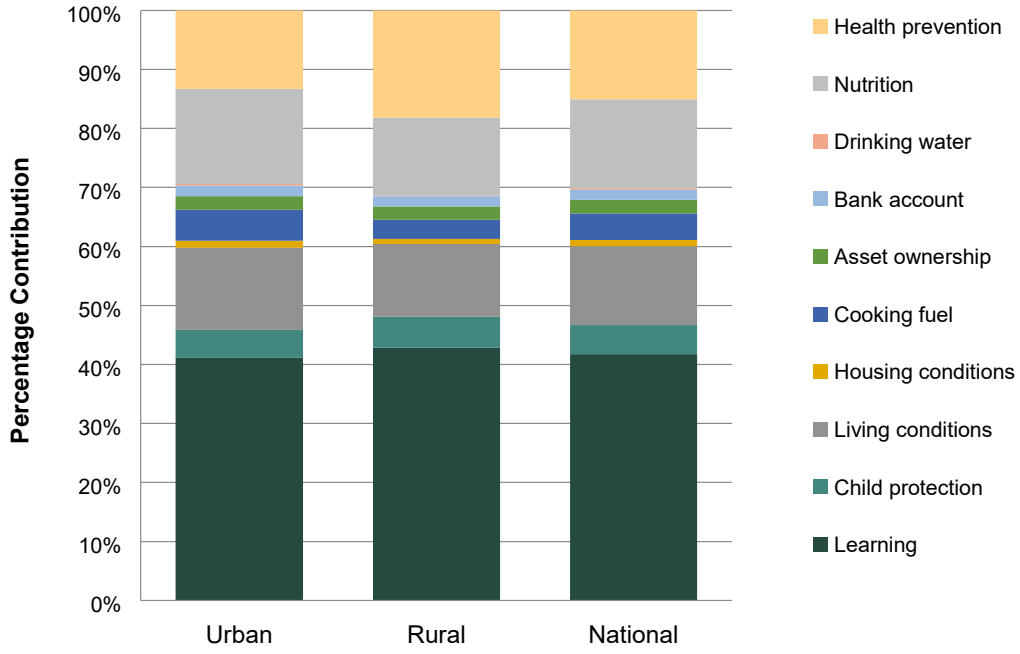
Source: Authors' calculations based on data from MICS 2015/16.

For a more in-depth view on child multidimensional poverty, it is useful to see the percentage contribution of each of the 10 indicators to overall child multidimensional poverty in both rural and urban areas of Thailand. In Figure 3.6, the weighted percentage contribution of each indicator is depicted to show the composition of multidimensional child poverty in rural and urban areas.[10] As the weights for the four dimensions are the same and the indicator in education has the highest weight of the index, it is expected that this indicator will contribute relatively more to overall poverty.

In terms of the percentage contribution of each of the 10 indicators to the Child MPI, the largest contributors to national poverty are deprivations in learning (41.7%), followed by nutrition (15.1%) and health prevention (15.0%). Education is also the dimension with the largest contribution to the MPI (41.7%), greater than the dimensions of health (30.1%), child welfare (18.3%), and living standards (9.9%).

10 The child population share is 59.7% for rural areas and 40.3% for urban areas.

Figure 3.6 Percentage Contribution of Each Indicator to Rural and Urban Child MPI, 2015/16

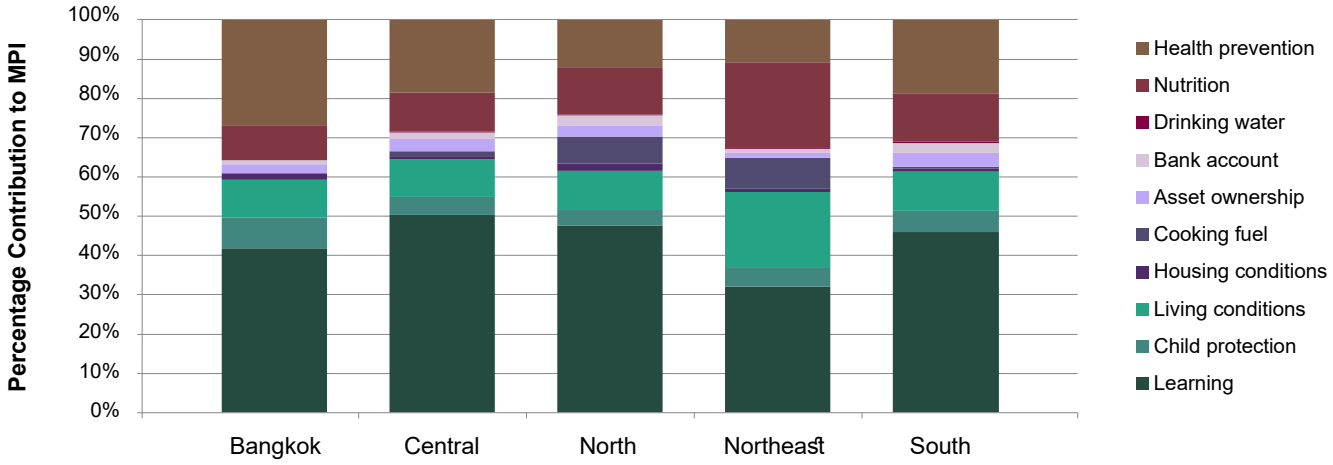


Source: Authors' calculations based on data from MICS 2015/16.

The patterns in urban and rural areas were largely similar, though health prevention contributed relatively more to rural poverty (18.1% compared to 13.3%) and nutrition contributed relatively more to urban poverty (16.1% compared to 13.3%). In this context, policies aiming to reduce deprivation for multidimensionally poor children should consider that poverty for children in rural and urban areas presents a similar composition. Indeed, in both areas, deprivations in education contribute the most, followed by health deprivations (nutrition in urban areas and health prevention in rural areas). These findings also reveal that although children in Thailand continue to face deprivations in indicators related to the dimension of living standards, the contribution of indicators related to health and education is large, therefore policies aiming to reduce deprivations on these indicators might become a priority.

Since the Alkire-Foster method allows for subgroup decomposability and dimensional breakdown, it is possible to explore the dimensional composition of the Child MPI not only at national and urban/rural levels but also at the regional level. As Figure 3.7 highlights, regional breakdowns are particularly important because child multidimensional poverty varies across regions. The same figure illustrates the percentage contribution of each indicator to child multidimensional poverty for each of the five regions. There are some notable patterns in Figure 3.7. For instance, the education dimension contributes more than 40% to overall poverty in four of the five regions (except in the Northeast). The contribution of the living conditions indicator varies across regions; however, in the Northeast region, this indicator has one of the highest contributions to child multidimensional poverty. Therefore, policy priorities in this region should also focus on improving the living conditions of children,

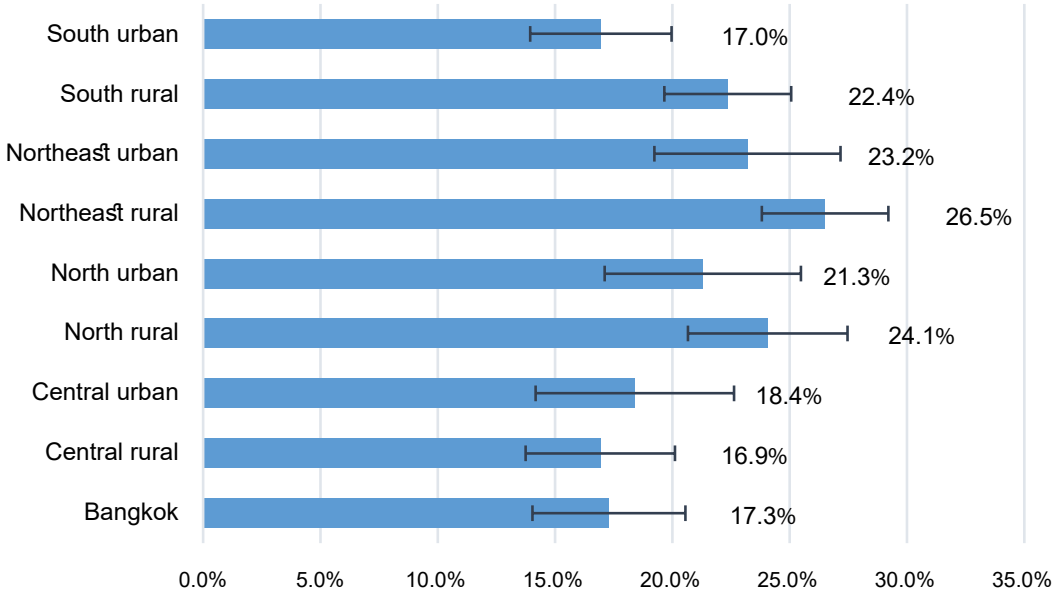
Figure 3.7 Percentage Contributions of Each Indicator to Regional Child MPI, 2015/16



Source: Authors' calculations based on data from MICS 2015/16.

A disaggregated analysis can also be conducted across regions by urban and rural areas (Figure 3.8). This brings together the previous two analyses and shows, for instance, that children living in the rural part of the Northeast are significantly poorer than those living in the rural part of the Central region or the urban part of the South region. The largest differences between urban and rural poverty seem to be in the South region where the poverty rate in rural areas in approximately 5 percentage points higher than in urban areas. In this context, policies should also focus on the needs of children living in different settings, for example governments can implement a strategy to reduce poverty and deprivations in the rural South and implement a different strategy in the urban South.

Figure 3.8 Incidence of Poverty by Region and Urban/Rural Area, 2015/16



Source: Authors' calculations based on data from MICS 2015/16.

In addition to the previous disaggregations, given the sampling design used by MICS 5 in Thailand, it is possible to analyse the levels of multidimensional poverty and deprivation in 14 provinces (Buriram, Sisaket, Yasothon, Kalasin, Nakhon Phanom, MHS, Tak, Ratchaburi, Kanchanaburi, Songkhla, Satun, Pattani, Yala and Narathiwat), as shown in Table 3.4. These provinces correspond to 16% of the population living in Thailand.

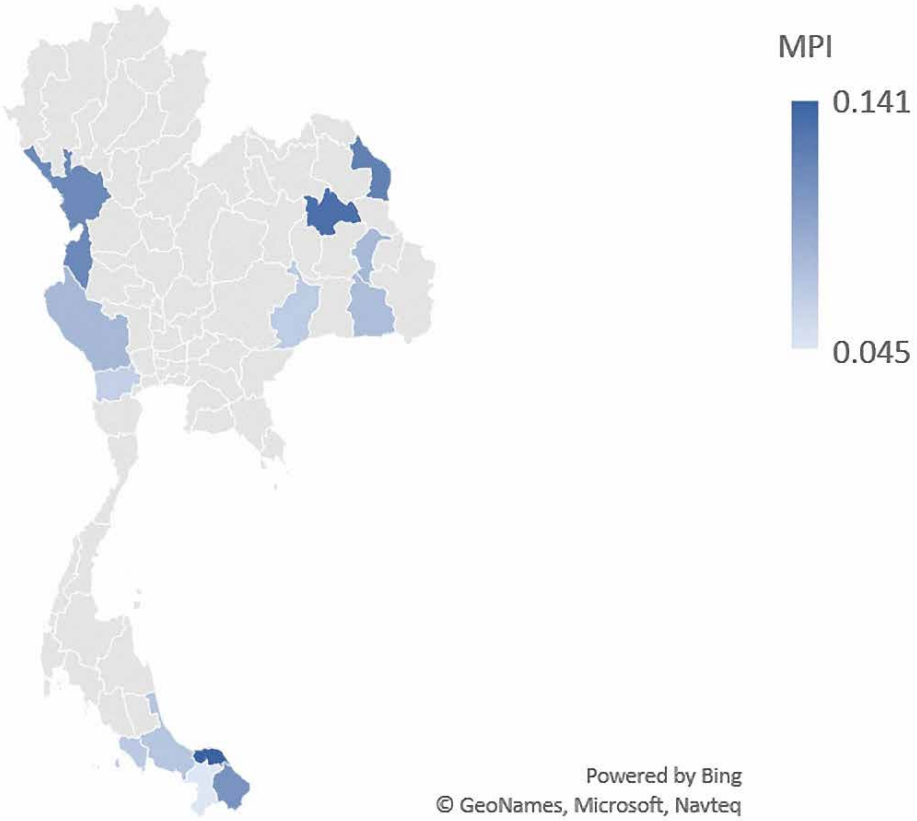
Of the 14 provinces, Kalasin has the highest incidence of child multidimensional poverty (40%), follow by Pattani (39.3%) and Nakhon Phanom (34.8%). Mae Hong Son (MHS) and Tak are the two provinces with intensities over 40%, meaning that on average children aged 0–17 living in these two regions face a significantly higher number of deprivations compared to children living in any of the other 12 provinces. Finally, the province with the highest Child MPI is Pattani (0.141), as shown in the map in Figure 3.9.

Table 3.4 Multidimensional Poverty by Province*, 2015/16

Provinces	Population Share (%)	MPI			Incidence (H, %)			Intensity (A, %)		
		Value	Confidence Interval (95%)		Value	Confidence Interval (95%)		Value	Confidence Interval (95%)	
National	100.0%	0.075	0.070	0.079	21.5%	20.3%	22.7%	33.0%	34.2%	35.2%
Buriram	2.1%	0.065	0.054	0.076	18.9%	20.3%	22.7%	34.4%	34.2%	35.2%
Kalasin	1.1%	0.132	0.116	0.148	40.2%	17.8%	26.8%	32.8%	33.2%	37.8%
Kanchanaburi	1.0%	0.080	0.067	0.093	24.1%	11.8%	24.4%	33.1%	31.8%	36.6%
MHS	0.3%	0.101	0.073	0.128	24.8%	29.3%	40.3%	40.6%	32.7%	36.1%
Nakhon Phanom	1.0%	0.120	0.098	0.141	34.8%	35.6%	44.7%	34.4%	31.6%	34.0%
Narathiwat	1.3%	0.107	0.090	0.123	28.5%	15.2%	21.4%	37.4%	34.7%	38.4%
Pattani	1.3%	0.141	0.115	0.166	39.3%	17.1%	23.5%	35.7%	33.0%	36.4%
Ratchaburi	1.3%	0.062	0.037	0.087	18.1%	21.1%	35.7%	34.2%	38.0%	42.4%
Satun	0.6%	0.067	0.055	0.079	18.3%	10.6%	16.1%	36.6%	31.4%	35.7%
Sisaket	2.0%	0.076	0.063	0.089	21.0%	15.7%	22.1%	36.2%	33.0%	35.8%
Songkhla	2.2%	0.070	0.058	0.083	20.3%	20.3%	27.9%	34.7%	31.6%	34.6%
Tak	0.9%	0.114	0.081	0.148	28.4%	18.7%	31.0%	40.2%	38.5%	42.7%
Yala	0.7%	0.045	0.034	0.056	13.4%	31.9%	46.8%	33.5%	34.1%	37.4%
Yasothon	0.8%	0.079	0.063	0.095	22.3%	17.1%	24.8%	35.5%	34.5%	38.0%

Source: Authors' calculations based on data from MICS 2015/16.
Note: *Only for the 14 provinces for which MICS 2015/16 is representative.

Figure 3.9 Map of Child MPI by Province*, 2015/16



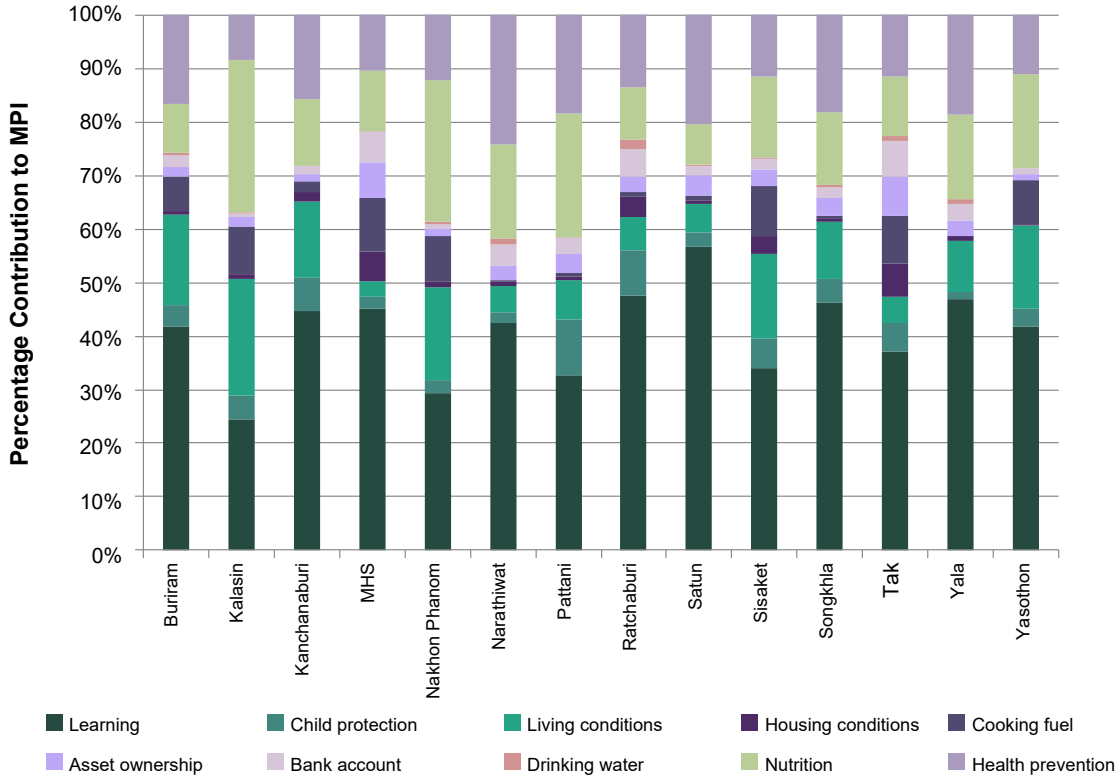
Source: Authors' calculations based on data from MICS 2015/16.
Note: *Only for the 14 provinces for which MICS 2015/16 is representative.

Multidimensionally poor children in each province present different levels of deprivation in each of the indicators included in the index (please see Table A2.3 in the Appendix). For example, Kalasin and Pattani have the highest deprivation in nutrition, with 30% and 26% of children who are multidimensionally poor and deprived in this indicator, respectively. In Buriram, Yasothon, and Songkhla, less than 1% of children are multidimensionally poor and deprived in adequate housing conditions, while in Tak, this figure is 14% of children.

Provinces	Population Share (%)	MPI			Incidence (H, %)			Intensity (A, %)		
		Value	Confidence Interval (95%)		Value	Confidence Interval (95%)		Value	Confidence Interval (95%)	
National	100.0	0.075	0.070	0.079	21.5%	20.3%	22.7%	33.0%	34.2%	35.2%
Buriram	2.1%	0.065	0.054	0.076	18.9%	15.7%	22.1%	34.4%	33.0%	35.8%
Kalasin	1.1%	0.132	0.116	0.148	40.2%	35.6%	44.7%	32.8%	31.6%	34.0%
Kanchanaburi	1.0%	0.080	0.067	0.093	24.1%	20.3%	27.9%	33.1%	31.6%	34.6%
MHS	0.3%	0.101	0.073	0.128	24.8%	18.7%	31.0%	40.6%	38.5%	42.7%
Nakhon Phanom	1.0%	0.120	0.098	0.141	34.8%	29.3%	40.3%	34.4%	32.7%	36.1%
Narathiwat	1.3%	0.107	0.090	0.123	28.5%	23.9%	33.2%	37.4%	36.0%	38.9%
Pattani	1.3%	0.141	0.115	0.166	39.3%	31.9%	46.8%	35.7%	34.1%	37.4%
Ratchaburi	1.3%	0.062	0.037	0.087	18.1%	11.8%	24.4%	34.2%	31.8%	36.6%
Satun	0.6%	0.067	0.055	0.079	18.3%	15.2%	21.4%	36.6%	34.7%	38.4%
Sisaket	2.0%	0.076	0.063	0.089	21.0%	17.1%	24.8%	36.2%	34.5%	38.0%
Songkhla	2.2%	0.070	0.058	0.083	20.3%	17.1%	23.5%	34.7%	33.0%	36.4%
Tak	0.9%	0.114	0.081	0.148	28.4%	21.1%	35.7%	40.2%	38.0%	42.4%
Yala	0.7%	0.045	0.034	0.056	13.4%	10.6%	16.1%	33.5%	31.4%	35.7%
Yasothon	0.8%	0.079	0.063	0.095	22.3%	17.8%	26.8%	35.5%	33.2%	37.8%

Figure 3.10 presents the percentage contribution of each indicator to the Child MPI of each of the 14 provinces analysed. As at the national level and for the five regions, the dimension of education contributes the most to levels of MPI in each of the provinces. However, the total percentage varies between provinces. For example, as education contributes 57% in Satun and only 24% in Kalasin, the policy priorities to reduce poverty and deprivation in each of these regions will differ. Indeed, as results suggest that children in the province of Satun do not have access to proper learning environments for their age, these aspects should be a priority for local government, in order to reduce the incidence and intensity of child multidimensional poverty.

Figure 3.10 Percentage Contribution of Each Indicator to Province MPI, 2015/16

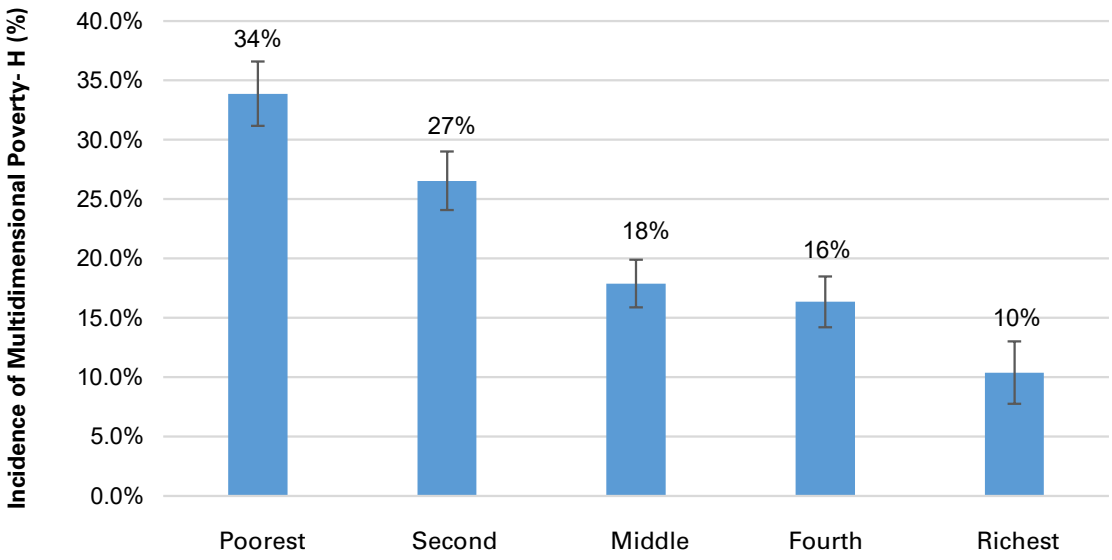


Source: Authors' calculations based on data from MICS 2015/16.

Finally, this report presents the incidence of multidimensional poverty by wealth index quintile (Figure 3.11)[11]. The analysis shows that, as expected, those in the poorest wealth index quintile also experience the highest rates of multidimensional poverty. However, even in the richest quintile, 10% of children are multidimensionally poor. This finding suggests that although multidimensionally poor children in Thailand are overrepresented in the poorest groups of society according to other measures, a small but important percentage of children live in households which are not considered poor. Therefore, policies should aim to identify all children living in multidimensional poverty, regardless of their socioeconomic status.

11 See the Thailand MICS 2015/16 Final Report for more information about the construction of the wealth index.

Figure 3.11 Incidence of Poverty by Wealth Index Quintile, 2015/16



Source: Authors' calculations based on data from MICS 2015/16.

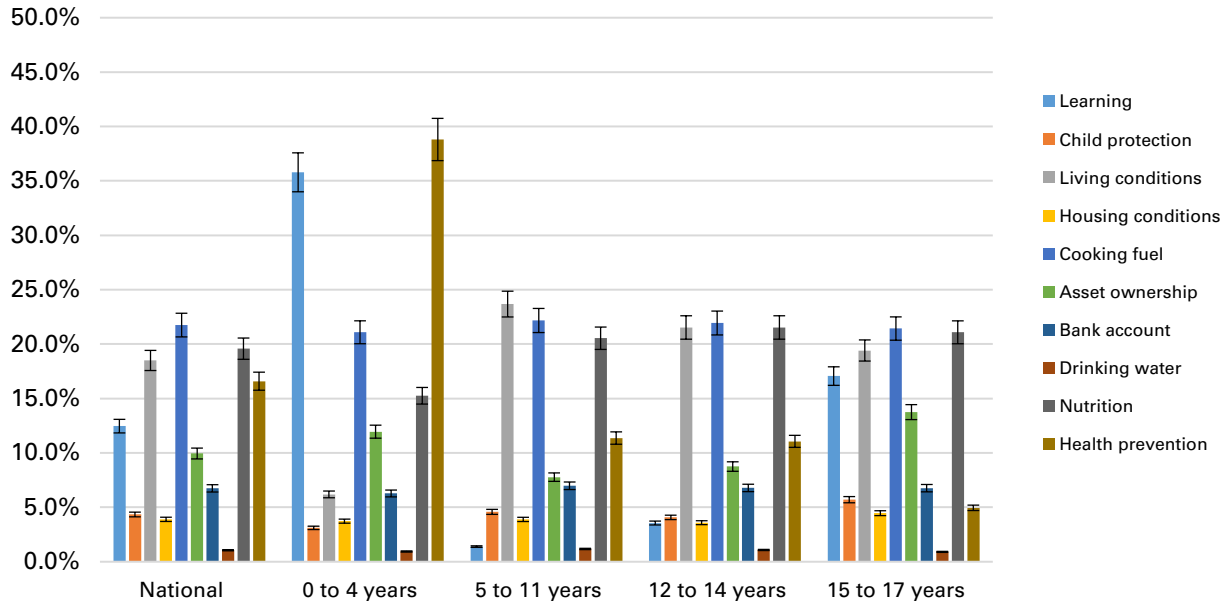
3.3. Performance across Age Groups and Other Individual and Household Characteristics

3.3.1. Age group

This section examines how the incidence of multidimensional poverty varies according to different age groups. For this purpose, this report explores the levels of deprivation and multidimensional poverty for children in the following age groups: younger than 5, 5–11 years, 12–14 years, and 15–17 years. Figure 3.12 presents the uncensored headcount ratios for each age group, by indicator. As can be seen below, the indicators in which children in Thailand are deprived vary substantially by age group. In the case of children younger than 5, the highest levels of deprivation are related to access to stimulation facilitating early development (access to book and activities with their carers) and having all age-appropriate vaccinations. In the case of children aged 5–11 and 12–14 years, the largest deprivation is associated with living conditions, such as living without any parents in the household, and for the 15–17 years age group, the deprivations with the highest incidence are cooking fuel and nutrition, either living in households cooking with solid fuel or where iodized salt is not used. It is important to highlight that comparisons between groups are not possible, because indicators are different for different age groups.[12]

12 In 2015/16, 23% of children in Thailand were younger than 5, 42% were aged 5–11 years, 18% were aged 12–14 years and 17% were aged 15–17 years.

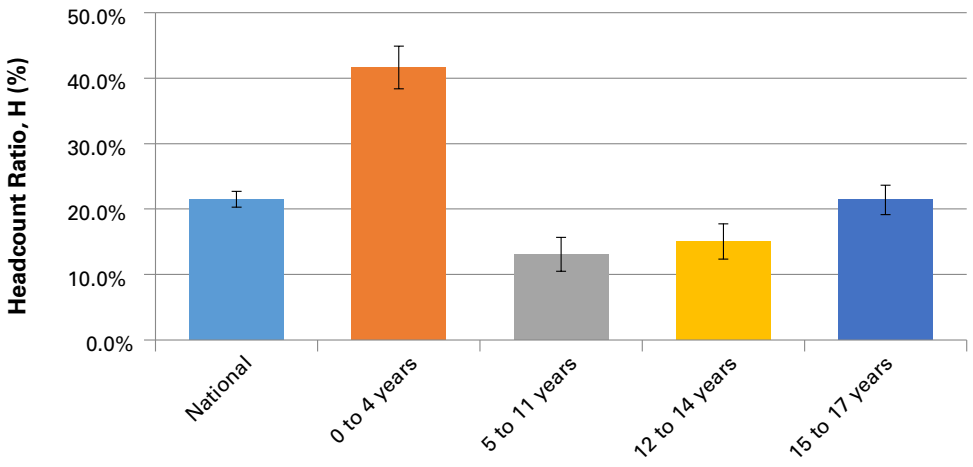
Figure 3.12 Uncensored Headcount Ratios by Age Group, 2015/16



Source: Authors' calculations based on data from MICS 2015/16.

As shown in Figure 3.13, the incidence of multidimensional poverty is significantly higher for children aged 0–4 years. In Thailand, 42% of children under 5 are multidimensionally poor, with an average number of deprivations equal to 37% and an MPI equal to 0.153. As will be shown in the next section, the high levels of multidimensional poverty in this age group are as a result of deprivations in education. Children aged 5–11 years face the lowest levels of multidimensional poverty of all groups. A total of 13% of children in this age group are multidimensionally poor and their intensity of poverty is also the lowest (around 30%). Although adolescents aged 15–17 years do not face the highest incidence of multidimensional poverty, they face the highest intensity of the three groups (39%) (Table 3.5).

Figure 3.13 Incidence of Multidimensional Poverty by Age Group, 2015/16



Source: Authors' calculations based on data from MICS 2015/16.

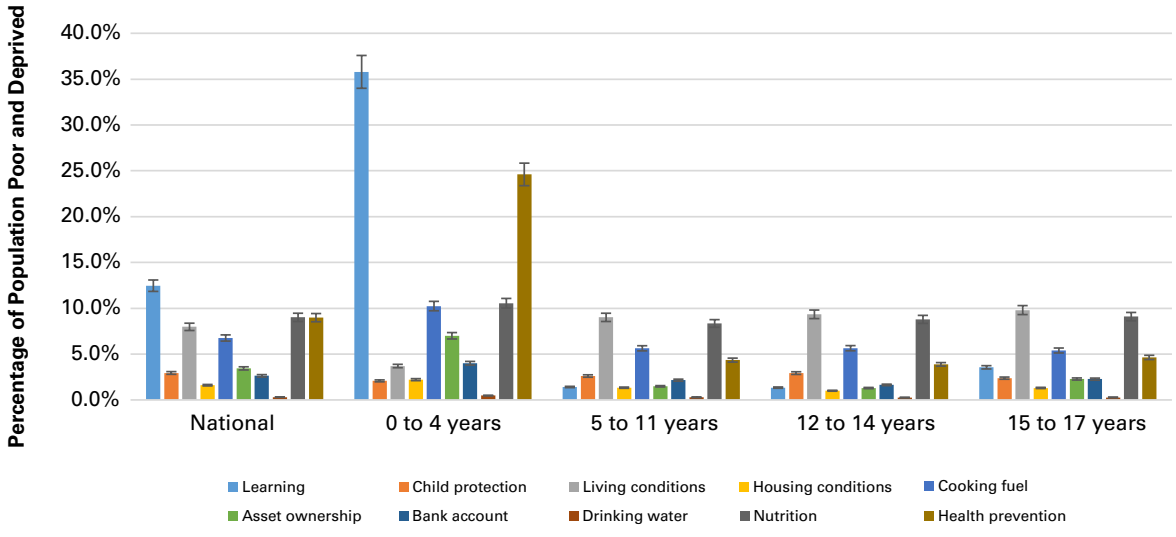
Table 3.5 Multidimensional Poverty by Age Group, 2015/16

Age Group	Population Share (%)	MPI			Headcount ratio (H, %)			Intensity (A, %)		
		Value	Confidence Interval (95%)		Value	Confidence Interval (95%)		Value	Confidence Interval (95%)	
National	100.0	0.075	0.070	0.079	21.5%	20.3%	22.7%	33.0%	34.2%	35.2%
0 to 4 years	23%	0.153	0.144	0.161	41.6%	39.4%	43.8%	36.7%	36.0%	37.3%
5 to 11 years	42%	0.039	0.035	0.044	13.1%	11.6%	14.6%	30.1%	29.5%	30.6%
12 to 14 years	18%	0.047	0.039	0.055	15.0%	12.7%	17.4%	31.3%	30.1%	32.4%
15 to 17 years	17%	0.084	0.073	0.094	21.4%	18.9%	23.9%	39.0%	37.4%	40.7%

Source: Authors' calculations based on data from MICS 2015/16.

Depending on the age group, the percentage of children who are multidimensionally poor and deprived in each indicator changes, as shown in Figure 3.14. Children under 5 years are deprived in learning (35%), health prevention (25%) and nutrition (11%). In the case of adolescents aged 15–17 years, the deprivations with the highest censored headcount ratios are learning (17%) and living conditions (8%). Finally, children aged 5–11 and 12–14 years are most deprived in living conditions (9.0 and 9.3%, respectively) and nutrition (8.3 and 8.8%, respectively).

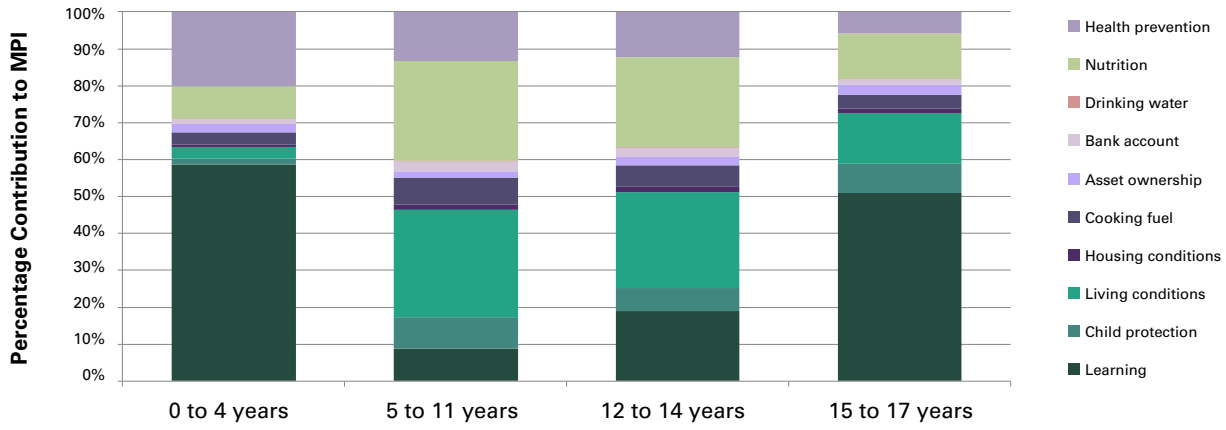
Figure 3.14 Censored Headcounts Ratios by Age Group, 2015/16



Source: Authors' calculations based on data from MICS 2015/16

Figure 3.15 illustrates the percentage contribution of each indicator to multidimensional poverty by age group. At first glance, it is clear that the composition of multidimensional poverty is different between the four groups, as expected. For instance, the education dimension contributes more than 50% to overall poverty for children under 5 years and the 15–17 years age group. For children aged 5–11 years, where learning is related to school attendance, the contribution of this indicator to MPI is around 8.8%. For this age group, the contribution of the indicators in the health dimension is one of the highest. For all four groups, the dimension of living standards is among the lowest contributors to overall multidimensional poverty levels.

Figure 3.15 Percentage Contribution of Each Indicator to Age Group MPI, 2015/16



Source: Authors' calculations based on data from MICS, 2015/16.

Finally, this report analyses the levels of multidimensional poverty for each age group living in urban and rural areas. As is presented in Table 3.8, poverty in rural areas tends to be higher across all age groups, but these differences are not statistically significant.

Table 3.6 Multidimensional Poverty by Age Group and Urban/Rural Areas, 2015/16

	Population share	MPI	Confidence Interval (95%) H			Confidence Interval (95%) A			Interval (95%)	
Rural										
0 to 4 years	24%	0.160	0.149	0.171	43.4%	40.5%	46.2%	36.9%	36.1%	37.7%
5 to 11 years	42%	0.044	0.038	0.050	14.5%	12.6%	16.5%	30.3%	29.6%	30.9%
12 to 14 years	17%	0.048	0.039	0.058	15.3%	12.3%	18.3%	31.6%	30.3%	33.0%
15 to 17 years	17%	0.091	0.077	0.105	22.7%	19.7%	25.7%	40.1%	37.9%	42.3%
Urban										
0 to 4 years	22%	0.141	0.127	0.155	38.9%	35.4%	42.4%	36.3%	35.3%	37.3%
5 to 11 years	42%	0.032	0.026	0.039	10.9%	8.7%	13.2%	29.8%	28.7%	30.9%
12 to 14 years	19%	0.045	0.033	0.057	14.7%	10.8%	18.6%	29.6%	28.2%	31.1%
15 to 17 years	17%	0.073	0.056	0.090	19.6%	15.1%	24.0%	30.7%	28.8%	32.6%

Source: Authors' calculations based on data from MICS, 2015/16.

In conclusion, children of different ages face different levels of deprivation and multidimensional poverty. On the one hand, while children under 5 years are the poorest, they also face higher levels of deprivation on education and health and are the most vulnerable. Because of the large contribution that the indicator on education has on the MPI for younger children, policies aiming to improve the learning environment of young children should be a priority. On the other hand, children aged 15–17 years face the highest intensity of poverty, thus on average children who are multidimensionally poor face a higher number of deprivations, therefore policies aiming to reduce poverty for this group should focus on reducing the intensity of their poverty.

3.3.2. Gender

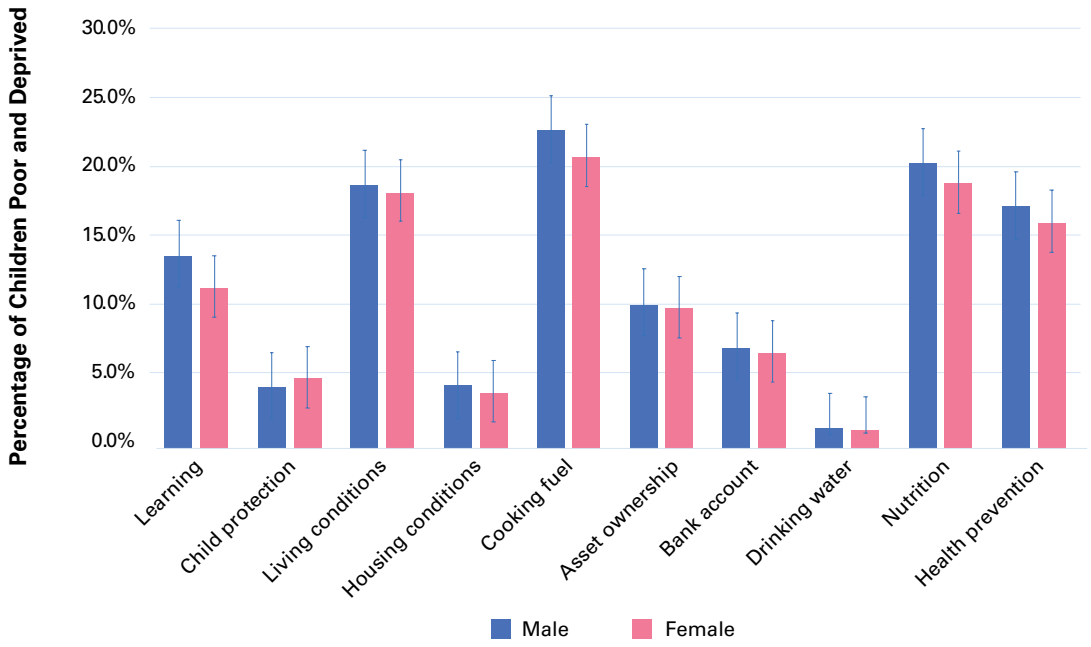
In Thailand, boys face higher levels of multidimensional poverty than girls (23.6% of boys compared to 19.3% of girls), but the intensity of multidimensional poverty is similar across genders (Table 3.7). In addition, poor boys and girls experience different deprivations (Figure 3.16). Indeed, boys tend to be more deprived in the learning indicator compared to girls, whereas girls are slightly more deprived in the child protection indicator. There are also relatively large differences in cooking fuel, nutrition, and health prevention, all of which poor boys are more likely to be deprived in than poor girls. However, these differences are not statistically significant.

Table 3.7 Multidimensional Poverty by Gender, 2015/16

Gender	Population Share (%)	MPI			Incidence (H, %)			Intensity (A, %)		
		Value	Confidence Interval (95%)		Value	Confidence Interval (95%)		Value	Confidence Interval (95%)	
Male	51%	0.081	0.075	0.086	23.6%	22.1%	25.1%	34.1%	33.5%	34.7%
Female	49%	0.069	0.063	0.074	19.3%	17.9%	20.7%	35.5%	34.7%	36.3%
National	100%	0.075	0.070	0.079	21.5%	20.3%	22.7%	33.0%	34.2%	35.2%

Source: Authors' calculations based on data from MICS, 2015/16.

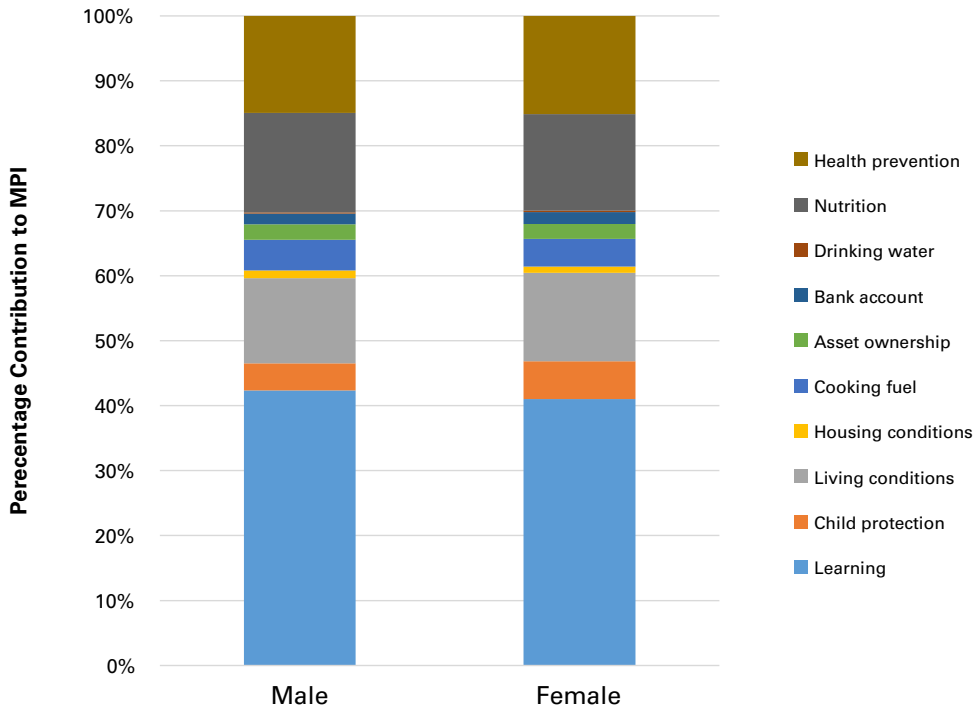
Figure 3.16 Censored Headcount Ratios by Gender, 2015/16



Source: Authors' calculations based on data from MICS, 2015/16.

Figure 3.17 takes this analysis a step further by showing how the composition of poverty differs between boys and girls. While the compositions are relatively similar, there are some differences, particularly in the child protection indicator, which contributes more to the MPI for girls than for boys. In this context, public policies aiming to reduce multidimensional child poverty in Thailand should also have a gender focus. Therefore, programmes should tailor their strategies to reduce deprivations in education (access to adequate learning environments for children under 5 and school attendance for older children) targeting multidimensional poor boys and also reduce deprivations related to living conditions for both genders (for children in Thailand who are living in households without at least one parent who is still alive or are under the care of another child or left alone during the day). In addition, it is also important to recognise that deprivations are related and that the reduction of one deprivation might be associated with the reduction of another. For example, children living in households whose main source of cooking fuel is solid fuel are more likely to live in a household where iodized salt is not used for cooking.

Figure 3.17 Percentage Contribution of Each Indicator to MPI by Gender, 2015/16



Source: Authors' calculations based on data from MICS, 2015/16.

3.3.3. Birth Order

Table 3.8 shows that in Thailand, the youngest child in each household faces higher levels of poverty than their older siblings. The oldest child in the family is the least likely to be poor. This may reflect the uneven distribution of resources within households in ways that favour the eldest child. Policies is Thailand should target children facing this intrahousehold inequality and reduce the negative effect that these behaviours can have in the lives of children.

Table 3.8 Multidimensional Poverty by Order of Birth, 2015/16

Order of birth	Incidence (H)	Standard Error	Confidence Interval (95%)	
Oldest (1st birth)	19.0%	0.007	17.7%	20.3%
Middle	21.1%	0.018	17.6%	24.5%
Youngest (last birth)	27.7%	0.010	25.7%	29.6%
Order of birth	Intensity (A)	Standard Error	Confidence Interval (95%)	
Oldest (1st birth)	34.6%	0.003	34.0%	35.3%
Middle	33.7%	0.007	32.4%	35.1%
Youngest (last birth)	35.1%	0.004	34.4%	35.9%
Order of birth	MPI	Standard Error	Confidence Interval (95%)	
Oldest (1st birth)	0.066	0.002	0.06	0.07
Middle	0.071	0.006	0.06	0.08
Youngest (last birth)	0.097	0.004	0.09	0.10

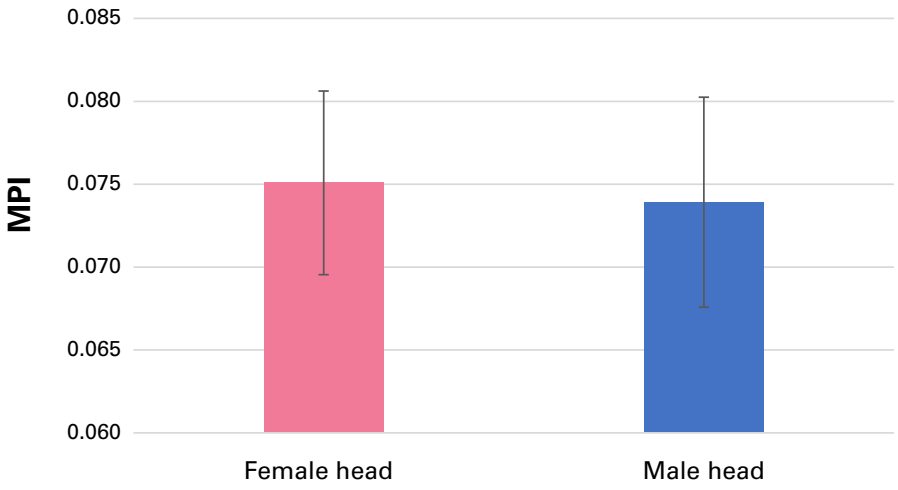
Source: Authors' calculations based on data from MICS, 2015/16.

3.4. Performance across Characteristics of other Household Members

In this section, the main results of multidimensional poverty depending on characteristics of other household members are presented. For that purpose, the report explores multidimensional poverty among different characteristics including gender of the household head; level of education of the household head; language spoken by the household head; and household size.

Figure 3.18 presents compares Child MPI for female-headed households and male-headed households.[13] As can be seen in Figure 3.18, there is no statistically significant difference in the Child MPI between households with female and male heads.

Figure 3.18 Child MPI by Gender of Household Head, 2015/16



Source: Authors' calculations based on data from MICS 2015/16.

In addition, as shown in Table 3.9, no significant differences exist between the censored headcount ratios by gender of the household head. The largest difference is found in the indicator of nutrition, where children living in households with male heads face the largest deprivations. The only indicator where children aged 0–17 living in female headed households face higher levels of deprivation is in health prevention (9.3% vs. 8.8%), but again this difference is not statistically significant. These findings reveal that children in female headed households do not face higher levels of deprivation, therefore child poverty in Thailand cannot be associated with the gender of the household head.

13 In 2015/16, 36.3% of children lived in a household with a female head.

Table 3.9 Censored Headcount Ratios by Gender of Household Head, 2015/16

Indicators	Censored Headcount Ratio (%)		Difference (p.p.)
	Female HH Head	Male HH Head	
Learning	12.4%	12.5%	-0.10%
Child protection	2.8%	3.0%	-0.21%
Living conditions	8.2%	7.8%	0.40%
Housing conditions	1.5%	1.7%	-0.14%
Cooking fuel	6.5%	6.9%	-0.39%
Asset ownership	3.0%	3.7%	-0.63%
Bank account	2.7%	2.6%	0.16%
Safe drinking water	0.3%	0.3%	-0.06%
Nutrition	8.4%	9.4%	-1.01%
Health prevention	9.3%	8.8%	0.51%

Source: Authors' calculations based on data from MICS 2015/16.

Table 3.10 presents the incidence, intensity and Child MPI by household head's educational attainment. Significant differences can be observed between the levels of multidimensional poverty for children living in households whose head has no education compared with other households (Figure 3.19).[14] The information presented in this analysis reveals rather dramatically that the level of education of a household's head is strongly related to child multidimensional poverty. While this is not surprising, it still merits consideration when designing policy responses. Accordingly, policy strategies to reduce child poverty might also consider the positive effect that increasing the level of education of parents can have on the levels of poverty and deprivation of children of different ages in the country.

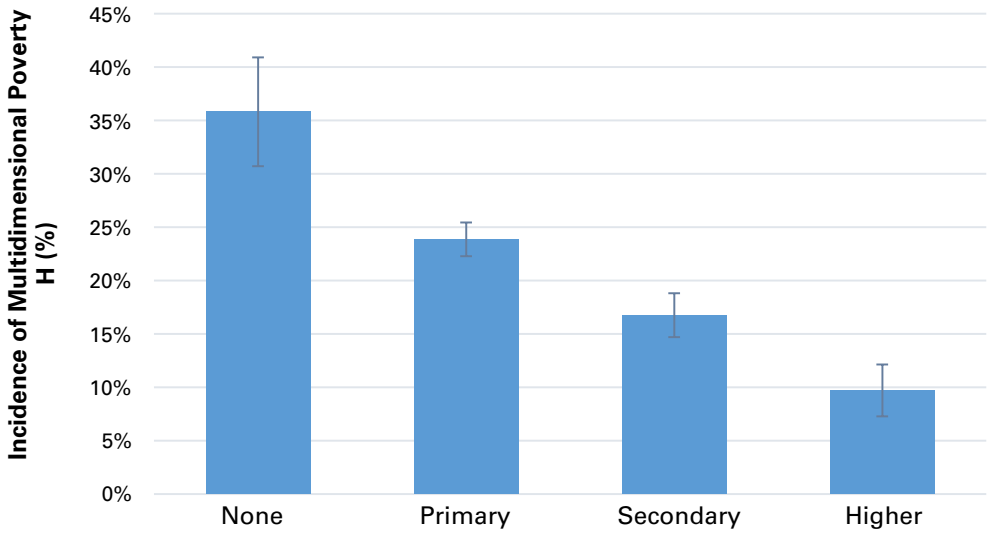
Table 3.10 Multidimensional Poverty by Education of Household Head, 2015/16

Index	Education of HH Head			
	None	Primary	Secondary	Higher
MPI	0.140	0.082	0.058	0.032
Incidence (H, %)	35.9%	23.9%	16.8%	9.7%
Intensity (A, %)	39.0%	34.4%	34.3%	32.4%

Source: Authors' calculations based on data from MICS 2015/16.

14 In 2015/16, 5.6% of children lived in a household whose head did not have any education, 61.0% lived in a household whose head had primary education, 23.2% lived in a household whose head had secondary education, and 10.2% lived in a household whose head had higher education.

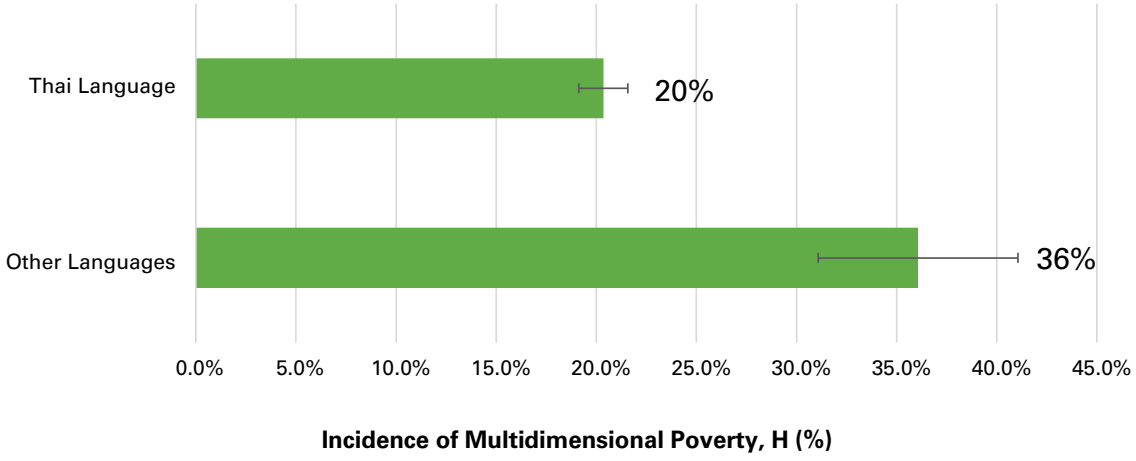
Figure 3.19 Incidence of Multidimensional Poverty by Education of Household Head, 2015/16



Source: Authors' calculations based on data from MICS 2015/16.

The language spoken by the household head also revealed stark differences in child poverty levels. Results indicate that children living in households whose head mainly spoke a language other than Thai were more likely to be multidimensionally poor (36%) compared to children living in households whose head mainly spoke Thai (20%), as seen in Figure 3.20.[15]

Figure 3.20 Incidence of Multidimensional Poverty by Language of Household Head, 2015/16

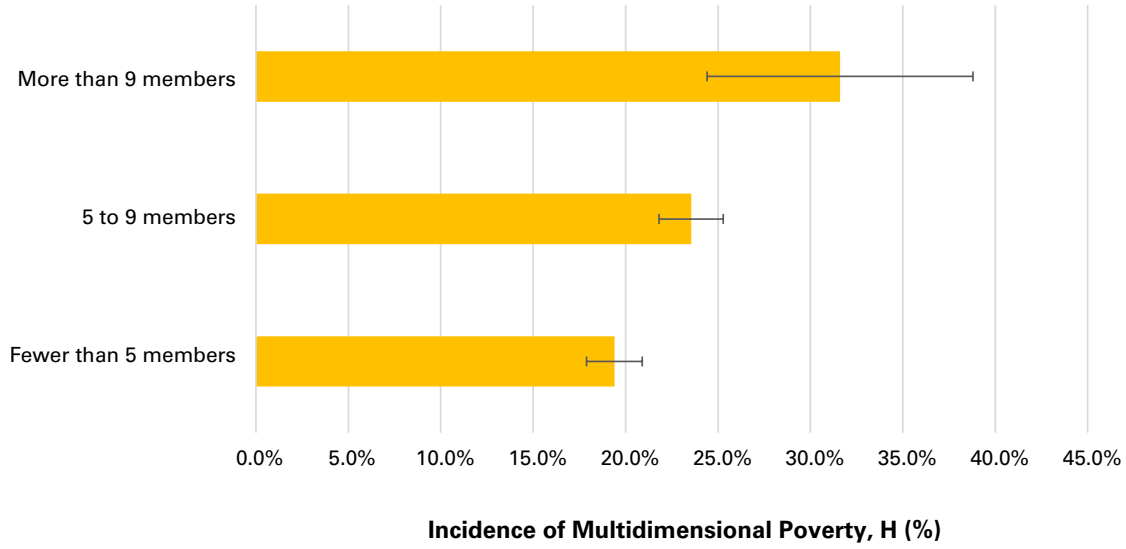


Source: Authors' calculations based on data from MICS 2015/16.

15 Out of the total population of children in Thailand, 92.7% of children live in households whose head speaks Thai and 7.3% live in a household whose head speaks another language.

Household size is another interesting characteristic in the analysis of child multidimensional poverty. Significant differences exist between the incidence of multidimensional poverty for children living in households with fewer than five members and larger households. Indeed, the incidence of poverty of children living in smaller households is 19.4% compared to 23.5% and 31.6% for children living in households with between five to nine members or more than nine members, respectively (Figure 3.21).[16]

Figure 3.21 Incidence of Multidimensional Poverty by Size of Household, 2015/16



Source: Authors' calculations based on data from MICS 2015/16.

In conclusion, the results of this analysis reveal that different parental or household characteristics are associated with higher levels of multidimensional poverty for children. Indeed, children living in households whose head has no education or primary education face higher levels of multidimensional poverty than children living in households whose head has a higher level of education. Another important determinant of multidimensional child poverty in Thailand is the language spoken by the head of the household. If the child lives in a household whose head speaks Thai, he or she is less likely to be multidimensionally poor than a child living in a household whose head does not speak Thai. These are important points to be considered in the design and implementation of public policies aimed at reducing multidimensional child poverty and deprivation. Therefore, policies might also target children living in households whose head does not speak Thai or has a lower level of education, which will increase the probability of targeting multidimensional child poverty.

16 Out of the total population of children in Thailand, 53.5% of children live in households with up to four members, 44.3% of children live in households with 5 to 9 members, and 2.1% of children live in households with more than 9 members.

3.5 Robustness Analysis

In order to evaluate the robustness of the results to changes in different parameters, pairwise comparisons and rank robustness tests were conducted. The results – presented in Appendix 3 – revealed that the results of the Thailand's Child MPI are robust to changes in poverty cutoffs and weights.

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CHAPTER 4: CHANGES OVER TIME

A key component of understanding child poverty in Thailand is to measure how child poverty has changed over time. Accordingly, this report computes a comparable measure of child poverty using data from 2005/06, 2012, and 2015/16. This section covers the following:

4.1. Comparable Measure
4.2. Changes in Child Multidimensional Poverty 2005/06, 2012, and 2015/16
4.3. Changes in Child Multidimensional Poverty by Region
4.4. Changes in Child Multidimensional Poverty by Age Group

4.1. Comparable Measure

This section explains the measure and data used to compare child poverty across time. In this chapter, a Child MPI and its sub-indices using data from the MICS from 2005/06, 2012, and 2015/16 is computed and presented.

In order to compare poverty across time, it is necessary to have a child poverty measure that can be harmonized across the different datasets used. This measure is based on the measure analysed earlier in the report, but is changed due to data limitations in the earlier datasets and the need for strict comparability across time. As this is an individual-level measure for children aged 0-17, it was particularly important to use indicators that had information for all age groups and for both genders. The MICS questionnaires from the three survey years are largely similar, but with a few notable differences relevant for the child poverty measure.

The comparable measure maintains the same four dimensions (education, child welfare, living standards, and health), but includes only 7 of the 10 indicators, as shown in Table 4.1. The indicators that could not be included into the comparable measure due to data limitations are: child protection, bank account, and health prevention. The living conditions, housing conditions, cooking fuel, assets, and nutrition indicators were adjusted to include comparable information. Finally, the regions were slightly different in the 2005/06 survey, so these categories were harmonized to be able to provide comparable regional analysis.

Table 4.1 Dimensions, Indicators, Cutoffs, and Weights of Thailand's Comparable Child MPI

Dimension	Indicator	Deprivation Cutoff A child is deprived if...	Weight (%)
Education	Learning	is younger than 3 years and does not have at least 1 book, OR is 3 or 4 years old and does not do 4 or more of the 7 possible activities with the main caregiver, OR is older than 4 and younger than 18 and is not currently attending school	25%
Child Welfare	Living conditions	is younger than 5 and during the week previous to the survey was left alone for more than 1 hour in 1 day or more OR was left under the care of another child for more than 1 hour in 1 day or more, OR is 5 years or older and lives in a household without both parents	25%

Dimension	Indicator	Deprivation Cutoff A child is deprived if...	Weight (%)
Living Standards	Housing conditions	lives in a dwelling whose main floor material is rudimentary, natural or other material, OR the main roof material is rudimentary, natural or other, OR the main walls material is rudimentary, natural or other	6.25%
	Cooking fuel	lives in a household where solid fuels are used for cooking and the cooking is done inside the dwelling	6.25%
	Asset ownership	lives in a household that owns less than 4 assets (radio, television, refrigerator, bicycle and telephone), OR where there is no car or boat	6.25%
	Safe drinking water	lives in a household with not access to a protected source of water	6.25%
Health	Nutrition	is younger than 6 months and has never been breastfeed, OR is older than 6 months and younger than 5 years and is wasted or stunted, OR is aged 5-17 years and the household does not used iodized salt	25%

For child protection, the original indicator included information on severe child violence and early marriage. Neither the 2005/06 nor the 2012 questionnaires included the child discipline module, so no information was available on this indicator. Also, both of the older questionnaires only had information about early marriage for girls, and not for boys, which would not have allowed for gender-disaggregated analysis, therefore this indicator is not included in the analysis.

The 2012 questionnaire did include information on having a bank account, but the 2005/06 questionnaire did not. Thus, to create a measure that could be compared across all three time periods, this indicator had to be dropped.

For the health prevention indicator, the original measure included information on vaccination, handwashing, and sexuality education. The 2005/06 and the 2012 MICS did not include information on either handwashing or sexuality education. Therefor both indicators were not used in the analysis over time.

The living conditions indicator required only a small change, as the 2005/06 questionnaire asked for the number of hours, rather than the number of days, when a child was left alone. Based on the original deprivation cutoff, a child is considered deprived if they have been left alone or under the care of another child for at least one hour. The definition for the 2012 MICS is exactly the same as that for the 2015/16 MICS.

In the housing conditions variable, the materials included in the data for roof and walls varied across the three questionnaires, as presented in Table 4.2. For all three time periods, materials that were classified as ‘natural’ or ‘rudimentary’ were considered deprived and materials that were classified as ‘finished’ were considered non-deprived.

Table 4.2 Housing Categories across Three Surveys*1

		2005/06	2012	2015/16
Roof	Deprived	• No roof • Thatch/palm leaf • Sod • Palm/bamboo • Wood planks • Other	• No roof • Leaves (palm/ coconut leaves) • Grass (thatch/straw) • Bamboo • Wood planks • Cardboard • Other	• Thatch/palm leaves • Wood planks • Other
	Non-deprived	• Metal • Calamine/cement fibre • Ceramic tiles • Cement • Roofing shingles	• Metal alloy • Wood • Fibre • Ceramic tiles • Cement • Roofing shingles	• Metal/tin/alloy • Ceramic tiles • Cement
Walls	Deprived	• No walls • Cane/palm/trunks • Dirt • Plywood • Carton • Reused wood • Bamboo • Other	• No walls • Cane/palm/trunks • Bamboo • Stone with mud • Plywood • Cardboard • Reused wood • Other	• Cane/palm/trunks • Bamboo with mud • Plywood • Reused wood • Other
	Non-deprived	• Cement • Stone with lime • Bricks • Cement blocks • Wood planks/shingles • Zinc • Tile • Shera wood	• Cement • Stone with cement • Bricks • Cement blocks • Wood planks • Half cement, half wood	• Cement • Stone with lime • Bricks • Cement blocks • Wood planks/shingles • Zinc sheet • Gypsum board • Smart board/fibre cement board

Source: Authors' calculations based on data from MICS, various waves.
*Floor material used the same definition in the three surveys

Similarly, for the cooking fuel indicator, the deprivation cutoff remained whether or not the household used solid fuels for cooking and if cooking was done outdoors, but the particular materials listed as 'solid fuel' varied by survey. These are presented in Table 4.3.

Table 4.3 Cooking Fuel Categories across Three Surveys

		2005/06	2012	2015/16
Cooking fuel	Solid Fuels	• Coal/ignite • Charcoal • Wood • Straw/shrubs/grass • Animal dung • Agricultural crop • residues • Other	• Coal/ignite • Wood • Charcoal • Agricultural crop residues • Other	• Charcoal • Wood • Other
	Location	Outdoors or terrace	Outdoors	Outdoors

Source: Authors' calculations based on data from MICS, various waves.

The assets indicator was adjusted in four ways. First, the television categories changed over the years, so any information on ownership of television was considered, regardless of the question asked by the survey. Similarly, the 2015/16 questionnaire included smart phones, which were not covered on the older surveys. Any telephone was considered for this indicator, regardless of the type of phone. Third, air conditioning was not included in the questionnaire in 2005/06, so this asset was dropped for all surveys to ensure comparability. Finally, the 'big motorcycle' asset was not included in the 2005/06 or 2012 surveys, so this information was dropped from the indicator.

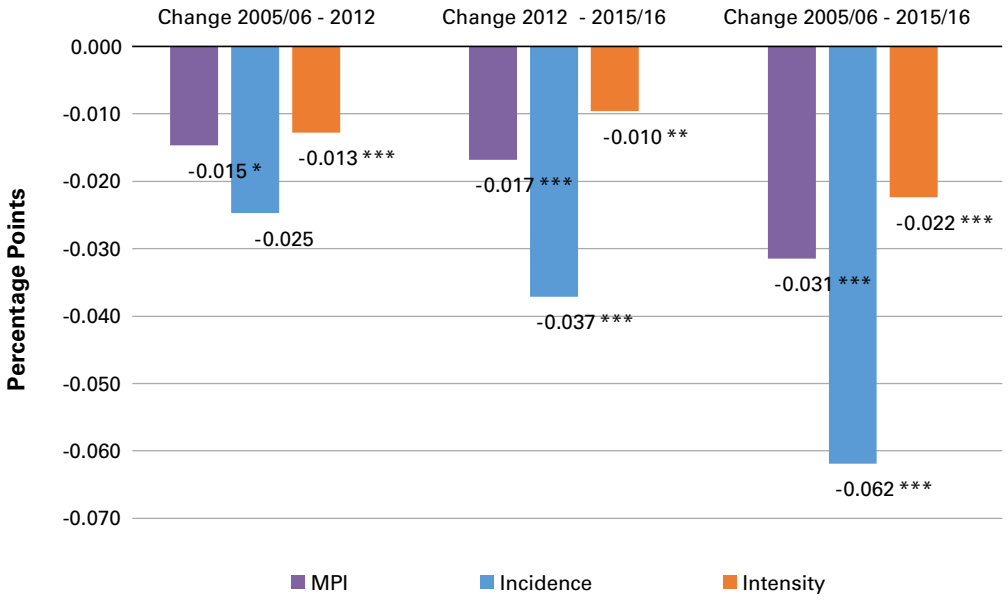
The last indicator to be adjusted was the nutrition indicator, for which the question asked about salt iodization differed in the 2005/06 questionnaire. This data included information on whether or not the salt was iodized, but not the results of both the iodide reagent and iodate reagent tests, as were included in both the 2012 and 2015/16 surveys. The comparable measure uses the full information available on iodized salt from each of the surveys.

4.2. Changes in Child Multidimensional Poverty 2005/06, 2012, and 2015/16

This section examines the evolution of child multidimensional poverty in Thailand looking at data from the years 2005/06, 2012, and 2015/16. It calculates the comparable Child MPI and its sub-indices (H and A) for the three periods using MICS datasets and it is disaggregated by regions. The comparable Child MPI allows presenting changes over time for indicators which have strictly comparable definitions and inferring trends over time in terms of child poverty alleviation. In particular, this section focuses on regional and dimensional changes over time. However, these results must not be compared with the main results presented in Chapter 3, because of the changes in the structure of the measure.

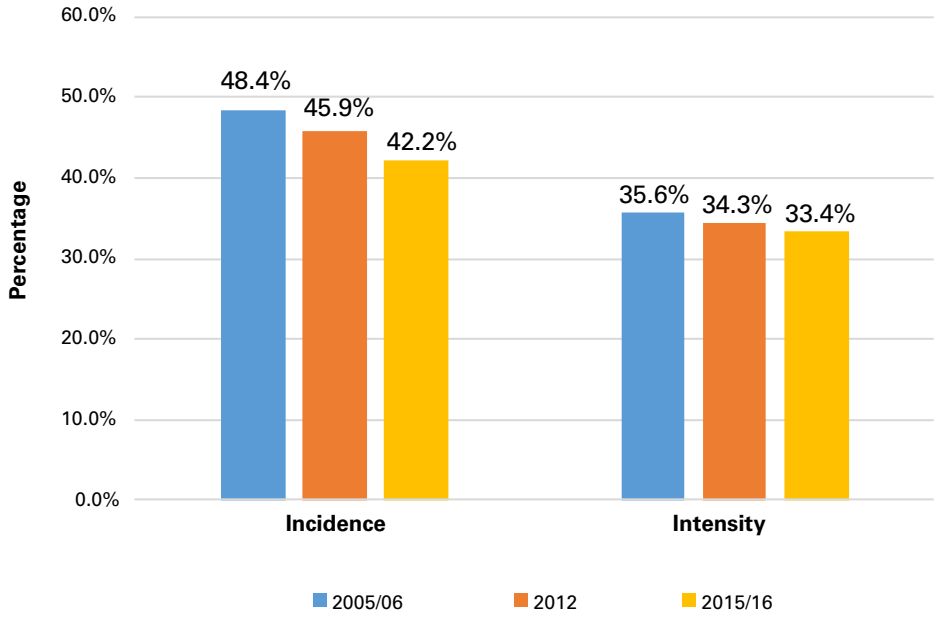
The adjustments made to the measure, which were explained in detail in the previous section, increased the incidence of child poverty in 2015/16 from 21.5% to 42.2%, which is a figure strictly comparable to the one computed from the 2005/06 and 2012 data. Figures 4.1 and 4.2 give an overview of how the incidence, intensity, and Child MPI have changed over the three points in time. It is evident that child multidimensional poverty dropped between 2005/06 and 2015/16. The Child MPI decreased from 0.172 to 0.141, and the headcount ratio (H) fell from 48.4% to 42.2%. Both reductions are statistically significant (see Table 4.4). As mention above, it is important to note that the figure of 42.2% considers the adjustments for comparability, while the official child multidimensional poverty rate in 2015/16 is 21.5%.

Figure 4.1 Absolute Changes in Incidence, Intensity and Child MPI in Thailand, 2005/06, 2012, and 2015/16



Source: Authors' calculations based on data from Thailand, various waves.
Note: *** 1% level of significance; ** 5% level of significance, * 10% level of significance, two-tailed test.

Figure 4.2 Incidence and Intensity of Child Multidimensional Poverty in Thailand, 2005/06, 2012, and 2015/16



Source: Authors' calculations based on data from Thailand, various waves.

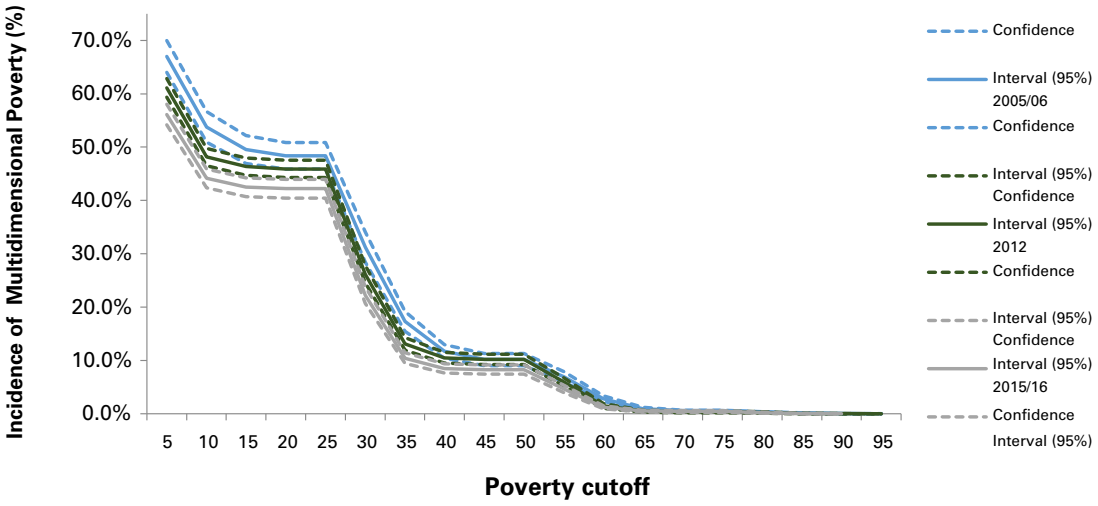
Table 4.4 Change in Incidence, Intensity, and Child MPI between 2005/06, 2012, and 2015/16

Poverty Cutoff = 25%	MPI	Incidence (H)	Intensity (A)
2548/49	0.172	48.4%	35.6%
2555	0.158	45.9%	34.3%
2558/59	0.141	42.2%	33.4%
Change 2005/06-2015/16	3.1%***	6.2%***	2.2%***
สมมติฐาน	3.69	3.11	4.66
ค่า p-value	0.000	0.002	0.000

Source: Authors' calculations based on data from MICS, various waves.
Note: *** 1% level of significance; ** 5% level of significance, * 10% level of significance, two-tailed test.

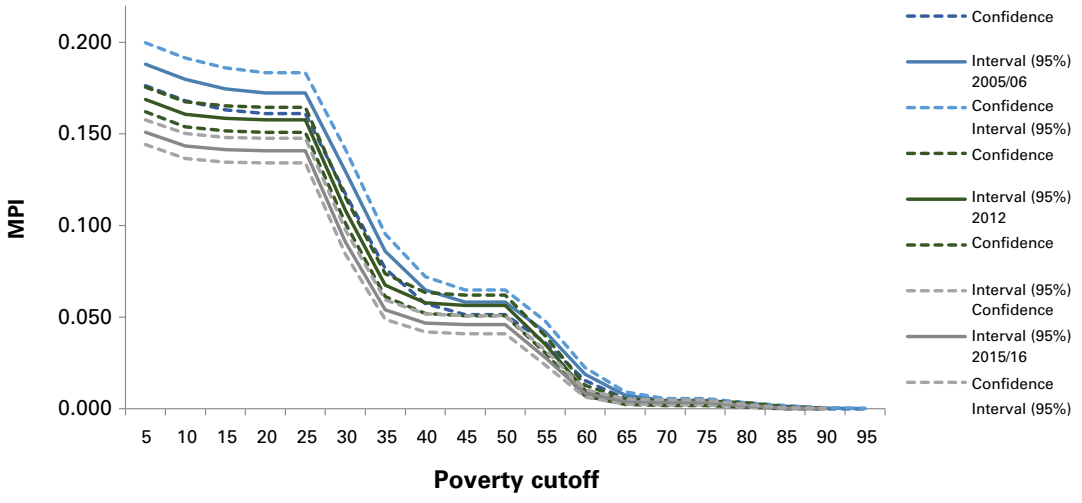
It is interesting to analyse the extent to which these improvements in the Child MPI, incidence, and intensity depend on the poverty cutoff. Figures 4.3 and 4.4 show the value of these three indicators for all possible values of the poverty cutoff and for the three waves under study. As can be seen, when comparing 2005/06, 2012 and 2015/16, the curves for the incidence of child multidimensional poverty are not overlapping for cutoffs lower than 45%, with the curves for 2015/16 always falling below the ones for 2005/06. This means that the conclusion about child poverty having reduced in the period under analysis is robust to different poverty cutoffs. In the case of value of the Child MPI, the curve for 2005/06 overlaps with the curve for 2012 over most values of the poverty cutoff; however, the curve for 2015/16 always falls below the curve for 2005/06. Statistical analyses confirm significant reductions in the incidence of poverty (H) and of the overall Child MPI between 2005/06 and 2015/16 regardless of the selected poverty cutoff.

Figure 4.3 Incidence of Child Multidimensional Poverty for Different Values of the Poverty Cutoff, 2005/06, 2012, and 2015/16



Source: Authors' calculations based on data from MICS, various waves.

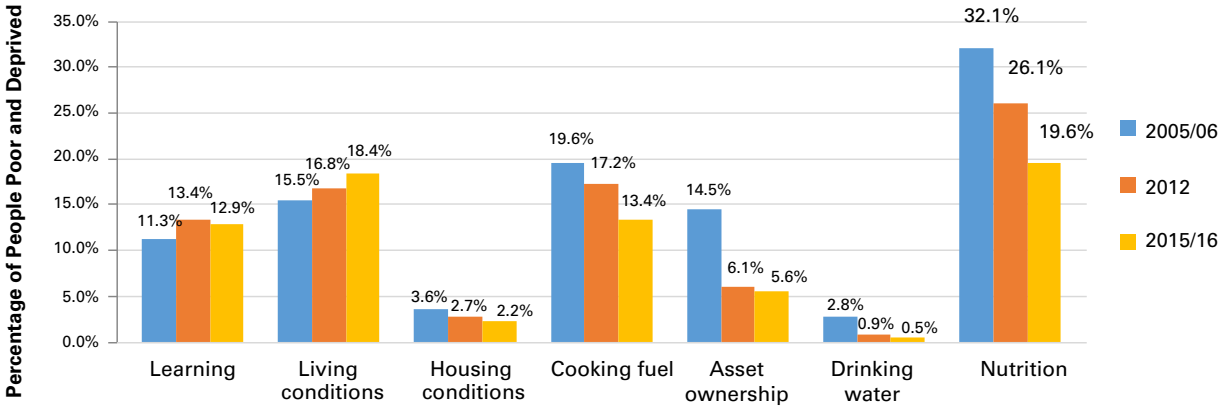
Figure 4.4 Child MPI for Different Values of the Poverty Cutoff, 2005/06, 2012, and 2015/16



Source: Authors' calculations based on data from MICS, various waves.

To understand how poverty has decreased and identify what indicators drove the reduction, it is useful to unpack the change in the Child MPI by each of its component indicators. Figure 4.5 provides a more refined view of what drove the substantial reduction in child multidimensional poverty over time. Censored headcount ratios – measuring the percentage of children who are MPI poor and deprived in a given indicator – are depicted for the three points in time. All changes between 2005/06 and 2015/16 were significant over time. Within the dimensions of living standards and health, all indicators show statistically significant reductions (at 1% level of significance) between 2005/06 and 2015/16. The indicator of living conditions shows an increase in the percentage of children deprived; thus, a larger number of children are poor and living without their parents or children under 5 are left under the care of another child or alone. The censored headcount ratio for asset ownership had the largest reduction between 2005/06 and 2012 (14.5% to 6.1%).

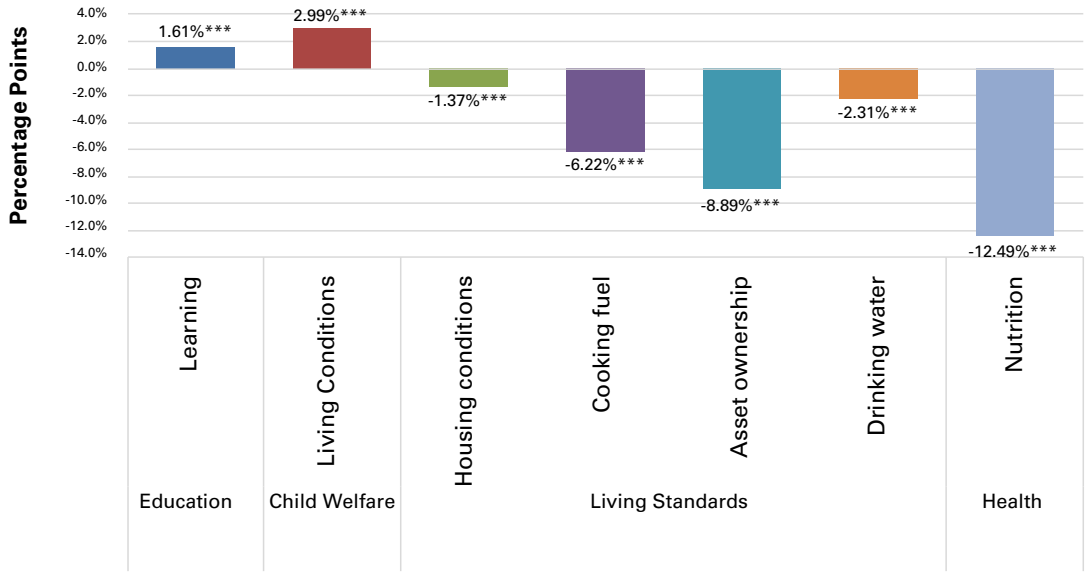
Figure 4.5 Censored Headcount Ratios, 2005/06, 2012, and 2015/16



Source: Authors' calculations based on data from MICS, various waves

Figure 4.6 depicts the absolute change in the censored headcount ratios between 2005/06 and 2015/16, in percentage points (pp). Clearly, the improvements in nutrition, asset ownership, and cooking fuel are the largest. On the other hand, there are significant increases in the censored headcount ratios of learning activities (1.6 pp) and living conditions (2.9 pp). The indicator on nutrition fell significantly, so the percentage of children under 5 who are wasted or stunted reduced, and the percentage of children living in a household without iodized salt also reduced.

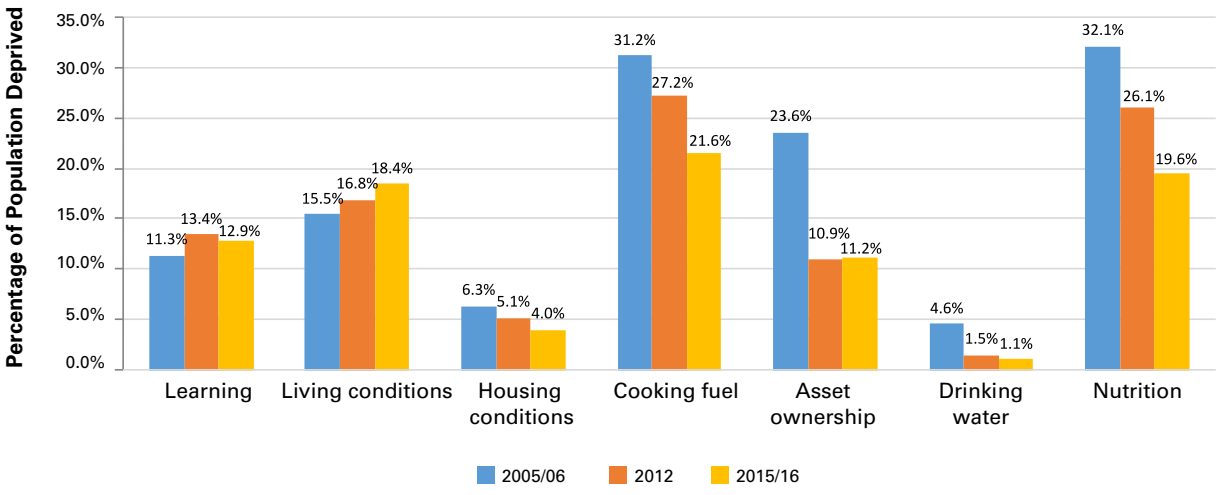
Figure 4.6 Absolute Change in Censored Headcount Ratios between 2005/06 and 2015/16



Source: Authors' calculations based on data from MICS, various waves.
Note: *** 1% level of significance; ** 5% level of significance, * 10% level of significance, two-tailed test.

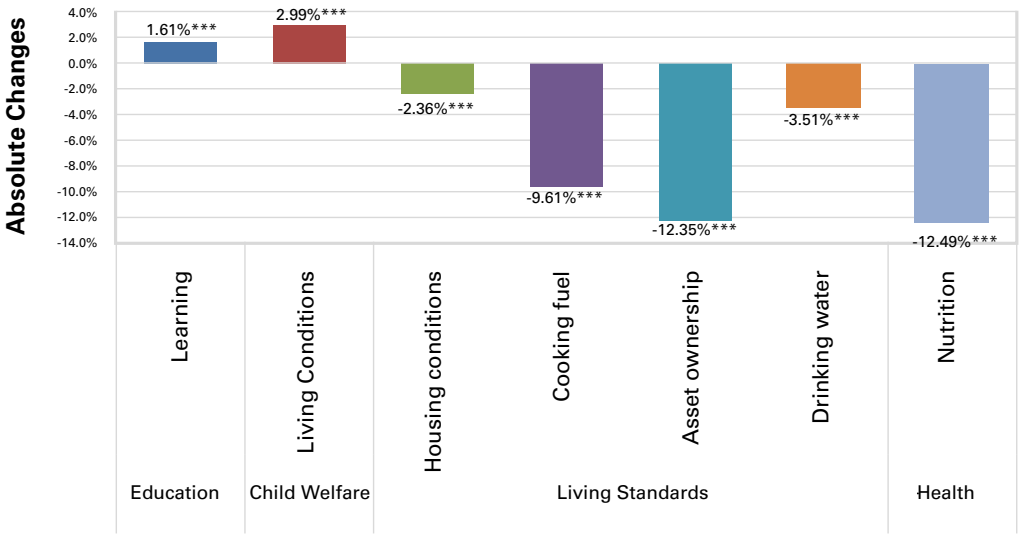
It is useful to analyse population-wide trends in the MPI indicators alongside the trends in deprivations of the poor. Figure 4.7 presents the proportion of children deprived in each of the seven indicators used in the comparable Child MPI, or the uncensored headcount ratios. The figure suggests that five of the seven indicators have registered improvements over time; that is, there has been a reduction in the proportion of children deprived in those indicators. Figure 4.8 displays the absolute change in the uncensored headcount ratios between 2005/06 and 2015/16. Nutrition and asset ownership show the largest absolute improvements (-12.5 and -12.3 pp, respectively), followed by cooking fuel (-9.6 pp) and safe drinking water (-3.5 pp). On the other hand, deprivations in living conditions and learning worsened between 2005/06 and 2015/16 (by +1.6 and 2.9 pp, respectively).

Figure 4.7 Uncensored Headcount Ratios, 2005/06, 2012, and 2015/16



Source: Authors' calculations based on data from MICS, various waves.

Figure 4.8 Absolute Change in Uncensored Headcount Ratios between 2005/06 and 2015/16



Source: Authors' calculations based on data from MICS, various waves.
Note: *** 1% level of significance; ** 5% level of significance, * 10% level of significance, two-tailed test.

Turning now to the contribution of each of the seven indicators of the comparable Child MPI, Figure 4.9 shows each indicator's contribution to overall child poverty in Thailand for each of the three waves under study. It appears that the general composition of the Child MPI has changed over time due to the increase in the deprivation in the indicators of living conditions and learning. There has been a reduction in the contribution of the indicators of nutrition and asset ownership, which corresponds to the reduction of the levels of deprivation of both indicators.

Figure 4.9 Contribution of Each Indicator to the Child MPI, 2005/06, 2012, and 2015/16

Source: Authors' calculations based on data from MICS, various waves.

4.3. Changes in Child Multidimensional Poverty by Region

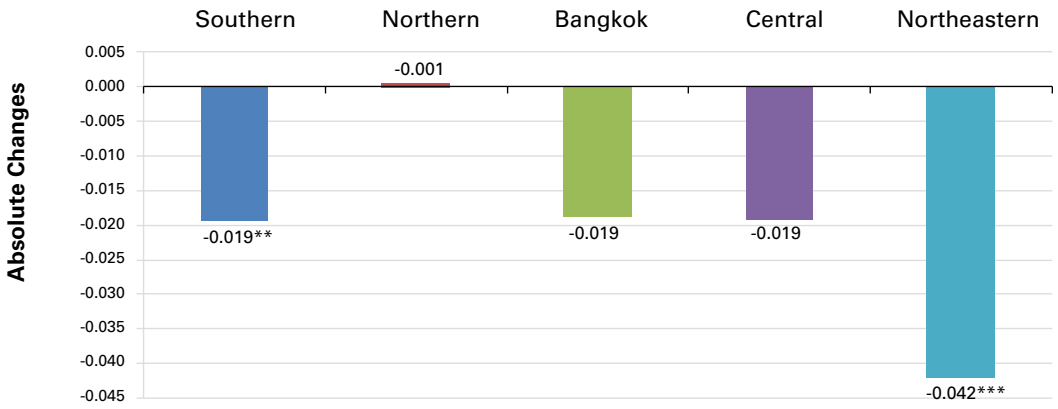
Table 4.5 presents the incidence, intensity and MPI of the five regions in 2005/06 and 2015/16. Amongst the five regions, three had statistically significant reductions in the Child MPI over the period under study. Figure 4.10 shows regional trends in absolute changes over time of multidimensional poverty. As can be seen, the Northeastern region shows the fastest absolute reduction in the MPI between 2005/06 and 2015/16 (more than -0.04 points of the index), followed by the Southern region (almost -0.02 points). These changes are statistically significant at 1%. Bangkok and the Central region also both have changes close to 0.02 points, but these changes are not statistically significant. A very small increase in MPI was seen in the Northern region, though this increase was not statistically significant, meaning that poverty did not statistically changed in the Northern region between 2005/06 and 2015/16.

Table 4.5 Incidence, Intensity and MPI across Regions in 2005/06 and 2015/16

	MPI		Incidence		Intensity	
	2005/06	2015/16	2005/06	2015/16	2005/06	2015/16
Southern	0.134	0.114	39.1%	36.6%	34.2%	31.3%
Northern	0.148	0.148	41.3%	44.1%	35.8%	33.6%
Bangkok	0.093	0.075	30.4%	24.6%	30.6%	30.3%
Central	0.120	0.101	37.6%	32.9%	32.0%	30.8%
Northeastern	0.245	0.203	65.2%	57.0%	37.6%	35.6%
Absolute change 2005/06						
Southern	-0.019		-2.5%		-2.9%	
Northern	0.001		2.8%		-2.1%	
Bangkok	-0.019		-5.8%		-0.3%	
Central	-0.019		-4.7%		-1.2%	
Northeastern	-0.042		-8.2%		-2.0%	

Source: Authors' calculations based on data from MICS, various waves.

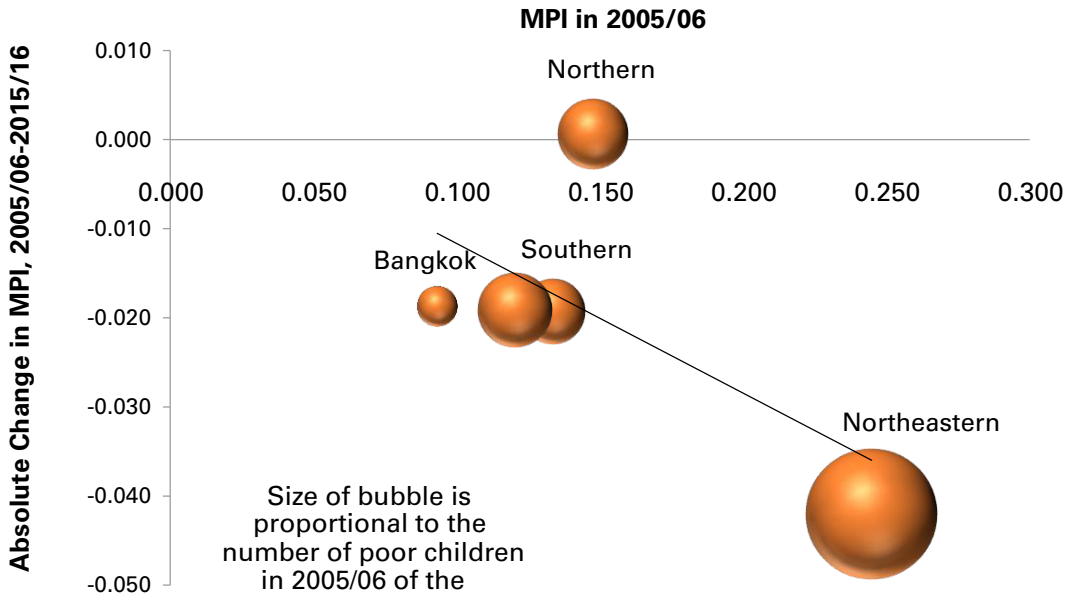
Figure 4.10 Absolute Change in Subnational Regions' MPI between 2005/06 and 2015/16



Source: Authors' calculations based on data from MICS, various waves.
Note: *** 1% level of significance; ** 5% level of significance, * 10% level of significance, two-tailed test.

To investigate if the reduction of multidimensional poverty across regions is pro-poor or is leaving the poorest regions behind, Figure 4.11 plots the absolute change in MPI on the vertical axis against the initial level of child poverty (i.e. the level of the Child MPI in 2005/06). The strong negative relationship between the initial level of the MPI and the absolute change in the MPI shows a pro-poor pattern. Poverty has tended to reduce faster in poorer regions than in less poor regions, hence, far from being left behind, the poorest regions are catching up.

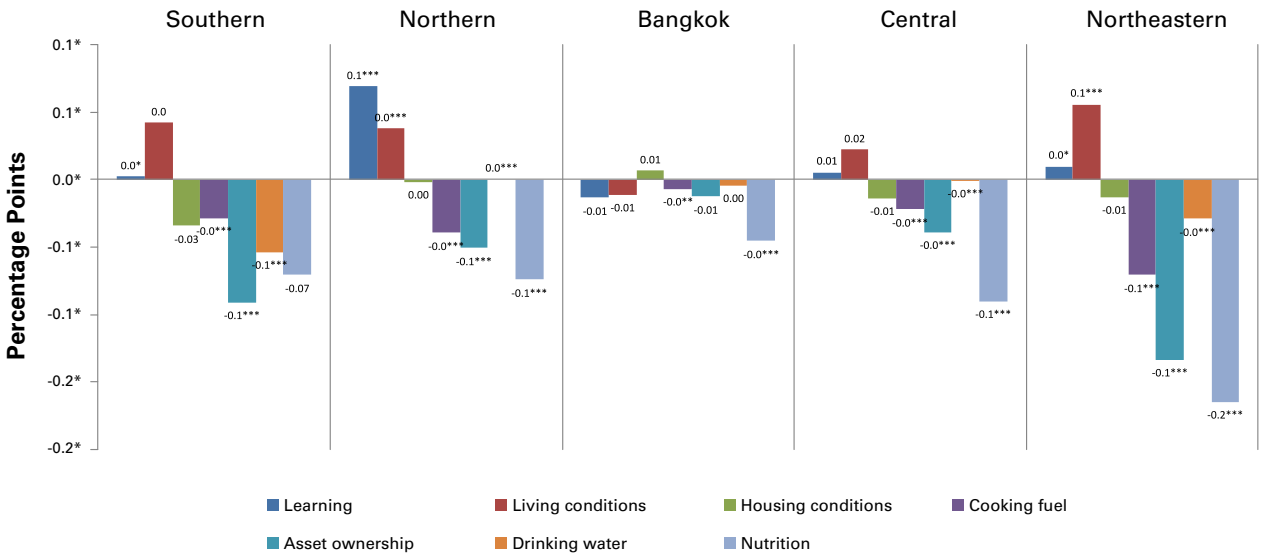
Figure 4.11 Poverty Reduction in Regions between 2005/06 and 2015/16



Source: Authors' calculations based on MICS, various waves.

To further analyse improvements in each of the regions of Thailand, Figure 4.12 highlights the changes in censored headcount ratios between 2005/06 and 2015/16. While there are clear improvements across most of the indicators in most regions, there are some exceptions. Notably, deprivations in education and living conditions have increased in every region except Bangkok and the Northeast. Additionally, in the Northern region, there was a small increase in the deprivation in safe drinking water.

Figure 4.12 Absolute Change in Censored Headcount Ratios by Region between 2005/06 and 2015/16



Source: Authors' calculations based on MICS, various waves.
Note: *** 1% level of significance; ** 5% level of significance, * 10% level of significance, two-tailed test.

4.4. Changes in Child Multidimensional Poverty by Age Group

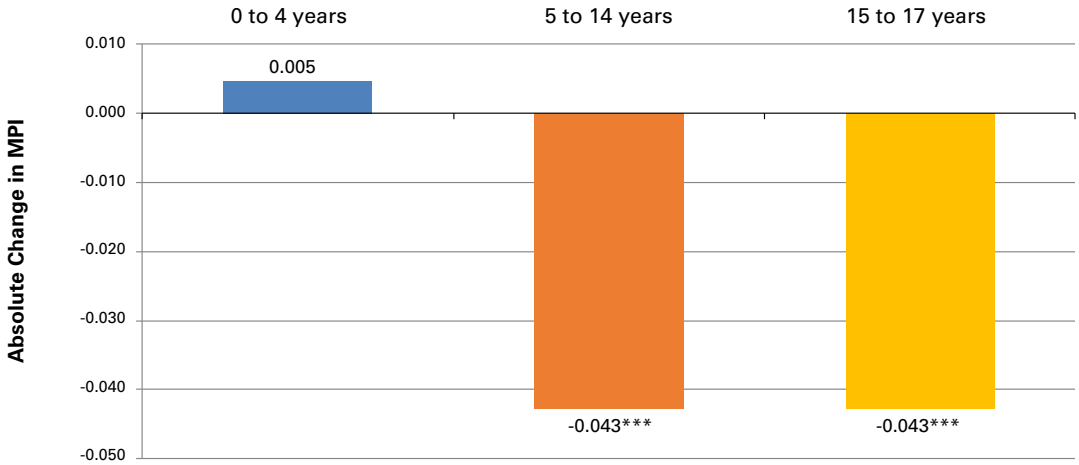
Amongst the different age groups (0–4 years, 5–14 years, and 15–17 years), two had statistically significant reductions in MPI. Table 4.6 presents the incidence, intensity and MPI of each age group and years. Figure 4.13 shows age group trends in absolute changes over time of multidimensional poverty. As can be seen, children under 5 years have experienced an increase in levels of multidimensional poverty, though this change is not statistically significant. Instead, children aged 5–14 and 15–17 years have had the fastest absolute reduction in the MPI between 2005/06 and 2015/16 (more than -0.04 points of the index for each age group). These changes are statistically significant at 1%.

Table 4.6 Incidence, Intensity and MPI by Age groups 2005/06 and 2015/16

	MPI		Incidence		Intensity	
	2005/06	2015/16	2005/06	2015/16	2005/06	2015/16
0 to 4 years	0.153	0.158	44.0%	48.4%	34.9%	32.6%
5 to 14 years	0.170	0.127	48.0%	38.8%	35.4%	32.8%
15 to 17 years	0.206	0.164	55.9%	45.3%	36.9%	36.1%
Absolute change 2005/06						
0 to 4 years	0.005		4.4%		-2.2%	
5 to 14 years	-0.043		-9.2%		-2.6%	
15 to 17 years	-0.043		-10.6%		-0.8%	

Source: Authors' calculations based on data from MICS, various waves.

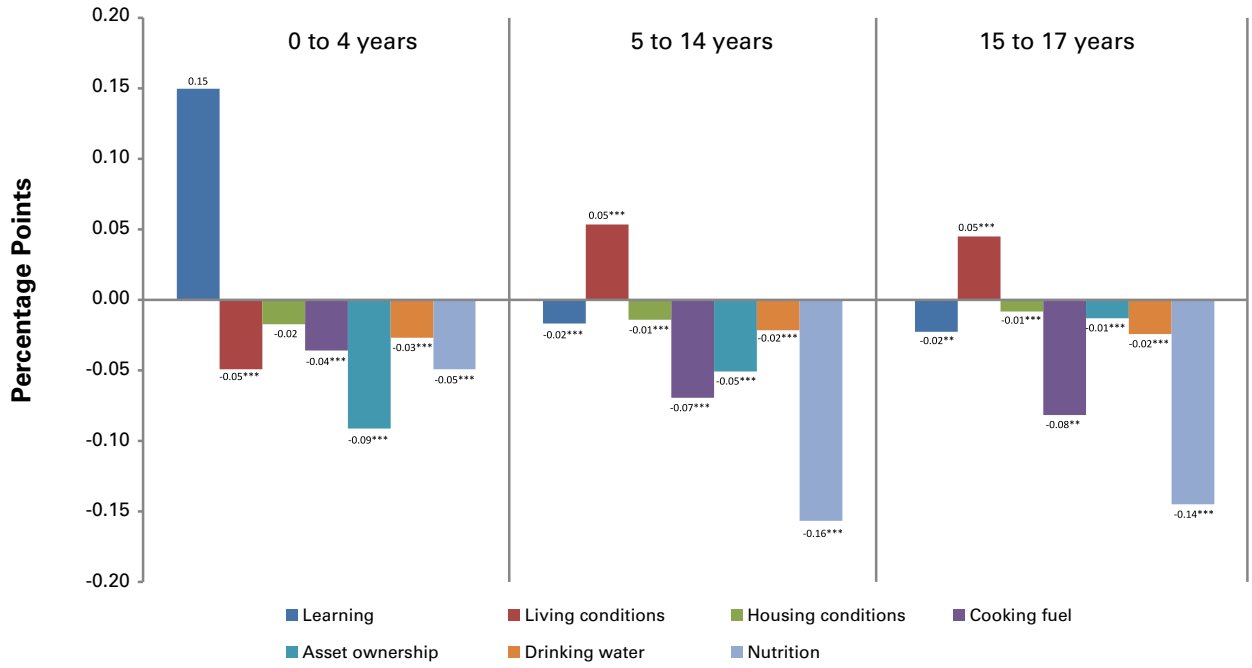
Figure 4.13 Absolute Change in Age groups' MPI between 2005/06 and 2015/16



Source: Authors' calculations based on data from MICS, various waves.
Note: *** 1% level of significance; ** 5% level of significance, * 10% level of significance, two-tailed test.

To further analyse changes in each age group, Figure 4.14 highlights the changes in censored headcount ratios between 2005/06 and 2015/16. While there are clear improvements across most of the indicators in most groups, there are some exceptions. Notably, education has increased in the youngest groups (younger than 5 years), thus, children in this group are not receiving enough stimulation by their parents (they do not have enough books, or their main carer does not engage in a set of activities with the child). In the other groups (5–14 years and 15–17 years), the indicator of living conditions has increased. Therefore, children in these groups of age are living in households without parents, even though their parents are alive. The indicator with the largest reduction for children under 5 is asset ownership, and in the case of older children nutrition.

Figure 4.14 Absolute Change in Censored Headcount Ratios by Age Group between 2005/06 and 2015/16



Source: Authors' calculations based on MICS, various waves.
Note: *** 1% level of significance; ** 5% level of significance, * 10% level of significance, two-tailed test.

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CHAPTER 5:
CONCLUSION AND RECOMMENDATIONS

This report has presented the 2015/16 Child Multidimensional Poverty Index (Child MPI) for Thailand and also described the composition of poverty among different groups, detailing how the Child MPI has changed from 2005/6 to 2015/16.

The Child MPI in Thailand provides important information to monitor the fulfilment of Sustainable Development Goal Target 1.2, which urges countries to halve by 2030 the proportion of men, women and children living in multidimensional poverty according to national definitions. The Child MPI complements monetary poverty analysis and reveals how children are experiencing multidimensional poverty across four dimensions and ten indicators selected through national consultation. While there are certain limitations in data availability, the MICS data allows us to capture key dimensions of child deprivation and also allows us to disaggregate the figures for regions and 14 selected provinces, as well as track trends over time. With this measure, Thailand has become one of the first countries to use a specially-designed Multidimensional Poverty Index to understand and further analyse multidimensional poverty for children. As the measure is tailored to the Thai context, it does not allow for cross-country comparisons. However, it provides information about key aspects of child development in Thailand that cannot be obtained from regional or global measures.

The results show many encouraging factors. While the overall poverty rate is higher than the national monetary poverty rate, this is because both measures capture different aspects of poverty and are analysing different populations. In the case of monetary poverty, the household is the unit of identification, while for the Child MPI, children aged 0–17 years are the unit of identification and analysis.

In addition, when the results are analysed in more detail, data shows that although the incidence of child multidimensional poverty is high, most of the children identified as multidimensionally poor are deprived in between 25% and 40% of the weighted indicators. Therefore, they are just below the poverty line. This important finding suggests that poverty programmes aimed at poor children should be able to quickly decrease the proportion of children in Thailand who are poor, if they correctly target multidimensionally poor children.

The findings suggest that younger children are the ones facing higher levels of multidimensional poverty compared to other children in Thailand. Given the importance of early learning as the foundation of building human capital and breaking inter-generational cycles of poverty and inequity, it is critical to strengthen cross-sectoral support during the early years in order to reduce the poverty rate among the youngest children. On the other hand, children aged 15–17 face higher levels of poverty and deprivation among those who are poor, driven by the education dimension where school dropout, particularly at the upper secondary level, is more likely to occur. Policies and programmes should focus on those who are more likely to be left behind in this age group, particularly those facing multiple risks in the areas of education, health or living standards.

In addition, of the 14 provinces included in the analysis, three provinces have an incidence of multidimensional poverty higher than 30%. These provinces should be prioritized by policy, aiming to reduce the levels of poverty and deprivation of children of different ages.

The findings also show that poorer regions are 'catching up'. The Northeast region is home to 38% of Thailand's poor children, and also has the highest proportion of multidimensionally poor children. At the same time, the Northeast region has experienced the fastest reduction of poverty, closing geographical inequities. Thailand's children experience relatively few deprivations in living standards indicators, reflecting the work that Thailand has done to become a high-middle-income country. Despite the progress in the Northeast region, it still has the highest rate of child multidimensional poverty. The North region has the highest intensity of child poverty. Targeted policies are needed to reach these regions and improve the welfare of children in Thailand, no matter where they live. It is important to analyse the reduction of each of the indicators based on the policies that have been implemented in the last decades.

In just one decade, Thailand has made tremendous progress in reducing child multidimensional poverty. Now more work is needed to improve the wellbeing of Thai children, which will be particularly important to ensure their productivity as Thailand becomes an aging society. It is hoped that this Child MPI will help provide the tools to more effectively and efficiently end child poverty in all its dimensions.

Now, the focus must turn from access to basic services like clean drinking water and primary education to other dimensions, which require not only improved living standards, but also better practices, knowledge and care arrangements for children. There is strong evidence that investment during a child's early years is one of the most cost-effective ways to build human capital, but the youngest age group face a higher poverty rate than older children. In particular, early childhood development and adequate nutrition remain crucial for reducing child poverty in Thailand. These areas should be the focus of public policies aiming to reduce poverty and deprivation for children in the country. It is also important to recognise that child poverty is not the same in all regions or provinces of the country. Indeed, the results reveal that dimensions and indicators contribute differently to the levels of poverty of children of different age groups in each region. In this context, policies must base their strategies on the composition of poverty and define priorities for each age group in each region or province.

One of the strongest predictors of child poverty in Thailand is the educational level of the household head. This reinforces the need for access to quality education as a means of halting the intergenerational cycle of poverty. Fortunately, Thailand has been successful at increasing school attendance for primary school children. Perhaps policies aimed at increasing attendance in secondary school and higher education could further contribute to future poverty reduction. Other groups who were more likely to be poor were larger households or households whose head spoke a language other than Thai. There is also intra-household poverty within the same household, with younger children more likely to be poor than their older siblings.

Analysis over time suggests that child poverty can be reduced and Thailand has done so. For enhanced impact, planning, monitoring and budgeting policies should address the sectoral and geographical areas highlighted in this report. The most efficient way to reduce the Child MPI will be to focus on reducing deprivations in indicators with the largest contributions to multidimensional poverty, particularly in education and health with particular focus on children under the age of 5, living in rural areas or in the Northeast region. In addition, policies should also reduce the number of multidimensional children living in the Central region, which has the largest number of multidimensional poor children.

The Thailand Child MPI has been developed through a national process involving key stakeholders and can be used as a tool to coordinate social policies and programmes aiming to reduce multidimensional child poverty. It is recommended that the concerned actors build on this national engagement by utilizing the measure for policy planning, monitoring and budgeting to see further reduction in the levels of multidimensional

poverty of children aged 0–17 in Thailand. The analysis provided in this report can be used for several purposes, which include: (1) complementing monetary poverty statistics to create a more comprehensive understanding of child poverty; (2) tracking child multidimensional poverty over time, as shown in Chapter 4; (3) allocating resources by sectors or geographic areas, depending on the regions with the largest deprivations and levels of poverty; (4) targeting marginalized regions and groups, in this case younger children, and those living in rural areas or in the Northeastern region of the country; (5) coordinating policy across sectors and subnational regions; (6) adjusting policies based on what works; (7) focusing policies so that the poor are not left behind; (8) monitoring progress towards the fulfilment of SDG target 1.2; and (9) promoting transparency so all stakeholders are engaged in the child poverty reduction efforts. Taken together, these can provide the tools necessary for a comprehensive child poverty reduction strategy in Thailand.

It is also important to identify existing policies, strategies and programmes aimed at reducing deprivation in each of the indicators or that can have a positive effect on the levels of deprivation of children in each of the indicators. Once these policies are identified, a coordinated policy process can facilitate a rapid and accountable improvement in the levels of child poverty and deprivation in Thailand. Setting concrete targets through the use of microsimulations and then bringing ministerial leaders together to reach these targets might be an effective way of reducing the incidence and intensity of Child MPI, as has been shown in Colombia and Mexico.

Joint ownership of the process across sectors can encourage holistic and concurrent policies and decision-making. For example, in Colombia, President Santos (2012–2018) convened a regular and mandatory Poverty Roundtable to facilitate this work. The Roundtable was a ministerial-level committee, chaired by the President, that met twice a year to discuss the country's poverty reduction goals. These goals were visualized through a dashboard (see Figure 5.1) using a traffic-light system to show which indicators were making progress towards the agreed targets and which were lagging behind. Based on this information, the Roundtable then made and revised an alert system timetable of concrete policy actions (e.g. free housing solutions or improved cash transfer programmes) to address any concerns. Data was updated through the annual survey from which the MPI was constructed and with interim quarterly estimates based on administrative data.[17]

Finally, the analysis of child poverty in Thailand needs to consider that children living in multidimensional poverty might face different deprivations depending on their individual characteristics, the characteristics of the head of their households, and the region or area in which they live. It is fundamental that the results presented in this report are used to propose policies whose aim is to reduce poverty and deprivation but tailored to different groups. In this context, multisectoral policies aiming to improve the learning environment of children and their living conditions can be an effective way to reduce poverty for younger children and children aged 15–17 (the age group with the highest intensity of poverty).

The ultimate objective, as clearly defined in the SDGs, should be to reduce the number of children living in multidimensional poverty at least by half by 2030. This requires strengthening policies and programmes that utilise both a cross-sectoral response that can address the multidimensional poverty comprehensively, as well as a sectoral response to address the issues proxied by the dimensions and indicators of the Child MPI. This will require an extensive policy analysis that identifies the issues facing children, the current status of policies and programmes, and an analysis of the gaps in overall policy response as well as policy response for each issue identified in the Child MPI.

17 For more information on the Colombian example, see Zavaleta, D. and Angulo, R. (2017). 'National Roundtable and Dashboard for Poverty Reduction in Colombia', MPPN Policy Briefing, Briefing 45, Oxford Poverty and Human Development Initiative.

Figure 5.1 Colombia Sector-Specific Dashboard to Reduce Poverty and Inequality

Poverty	Baseline DNP 2008	2011 data	2012 data	Analysis	Goal
Incidence of multidimensional poverty	34.7%	29.4%	27.0%	🟢	20.5%
Educational achievement (≥ 15 years)	58.8%	54.6%	53.1	🟢	52.8%
Literacy (≥ 15 years)	14.2%	12.0%	12.1%	🟢	12.0%
School attendance (6-16)	5.4%	4.8%	4.1%	🟢	3.5%***
No school lag (7-17)	33.4%	34.1%	33.3%	🟠	33.1%
Access to childcare services (0-5)	12.1%	10.8%	9.4%	🟢	10.6%***
Children not working (12-17)	5.5%	4.5%	3.7%	🟢	2.9%***
Long-term unemployment	9.6%	9.1%	10.0%	🔴	9.3%***
Formal employment	80.6%	80.4%	80.0%	🔴	74.7%
Health insurance	24.2%	19.0%	17.9%	🟠	0.5%
Access to health services	8.9%	8.2%	6.6%	🟠	2.4%***
Access to water source	12.9%	12.0%	12.3%	🟠	10.9%
Adequate sewage system	14.1%	14.5%	12.1%	🟢	11.3%***
Adequate floors	7.5%	6.3%	5.9%	🟢	5.6%
Adequate external walls	3.1%	3.2%	2.2%	🟢	2.1%***
No critical overcrowding	15.7%	14.2%	13.1%	🟢	8.4%

Source: 'Multidimensional Poverty Index – Applications Colombia', presentation to the First Multidimensional Poverty Peer Network meeting by Bruce Mac Master, Director of the Department for Social Prosperity, Oxford, June 2013.

APPENDIX

Appendix 1: The Multidimensional Poverty Index: Methodology and Properties

A1.1 The MPI Methodology

Suppose at a particular point in time, there are n people in the country and their wellbeing is evaluated by d indicators.[18] We denote the achievement of person i in indicator j by $x_{ij} \in \mathbb{R}$ for all $i=1.....n$ and $j=1.....d$. The achievements of n persons in d indicators are summarized by an $n \times d$ dimensional matrix X, where rows denote persons and columns denote indicators. Each indicator is assigned a weight based on the value of a deprivation relative to other deprivations. The relative weight attached to each indicator j is the same across all persons and is denoted by w_j, such that $w_j > 0$ and $\sum_{j}^{d} = 1 w_j = 1.$

In a single-dimensional analysis, people are identified as poor as long as they fail to meet a threshold called the 'poverty line', and non-poor otherwise. In a multidimensional analysis based on a counting approach – as with the adjusted headcount ratio – a person is identified as poor or non-poor in two steps. In the first step, a person is identified as deprived or not in each indicator subject to a deprivation cutoff. We denote the deprivation cutoff for indicator j by z_j, and the deprivation cutoffs are summarized by vector z. Any person i is deprived in any indicator j if $x_{ij} < z_j$ and non-deprived, otherwise. We assign a deprivation status score g_{ij} to each person in each indicator based on the deprivation status. If person i is deprived in indicator j, then $g_{ij} = 1;$ and $g_{ij} = 0$, otherwise. The second step uses the weighted deprivation status scores of each person in all d indicators to identify the person as poor or not. An overall deprivation score $c_i \in [0.1]$ is computed for each person by summing the deprivation status scores of all d indicators, each multiplied by their corresponding weights, such that $c_i = \sum_{j}^{d} = 1 w_j g_{ij}$. A person is identified as poor if $c_i \geq k$, where $k \in (0.1]$, and non-poor, otherwise.[19] The k value is the poverty cutoff, and it represents the minimum proportion of weighted indicators in which a person must be deprived in order to be considered multidimensionally poor. The deprivation scores of all n persons are summarized by vector.

After identifying the set of poor and their deprivation scores, we obtain the adjusted headcount ratio (M_0). Many countries refer to this as the MPI or Multidimensional Poverty Index. The focus axiom requires that while measuring poverty the focus should remain only on those identified as poor.[20] This entitles us to obtain the censored deprivation score vector $c(k)$ from c, such that $c_i(k) = c_i$ if $c_i \geq k$ and $c_i(k) = 0$, otherwise. The M_0 is equal to the average of the censored deprivation scores:

18 The meaning of the terms 'dimension' and 'indicator' are slightly different in Alkire and Foster (2014) and in Alkire and Santos (2010). In Alkire and Foster (2014), no distinction is made between these two terms. In Alkire and Santos (2010), however, the term 'dimension' refers to a pillar of wellbeing and a dimension may consist of several indicators..

19 For k=100%, the identification approach is referred to as the intersection approach; for $0 < k \leq min\{w_1,...,w_d\}$, it is referred to as the union approach (Atkinson, 2003). Alkire and Foster's dual cutoff approach requires $\min_j\{w_1,...,w_d\} \leq k \leq 1$ thus it includes union, intersection, and also intermediate cutoffs.

20 In the multidimensional context, there are two types of focus axioms. One is a deprivation focus, which requires that any increase in already non-deprived achievements should not affect a poverty measure. The other is a poverty focus, which requires that any increase in the achievements of non-poor persons should not affect a poverty measure. See Bourguignon and Chakravarty (2003) and Alkire and Foster (2014).

$$M_0 = MPI = \frac{1}{n}\sum_{i=1}^{n} c_i(k).$$

A1.2 Properties of the MPI

We now outline some of the features of M_0 that are useful for policy analysis. The first is that M_0 can be expressed as a product of two components: the share of the population who are multidimensionally poor, or multidimensional headcount ratio (H), and the average of the deprivation scores among the poor only, or intensity (A). Technically,

$$M_0 = MPI = \frac{q}{n} \times \frac{1}{q}\sum_{i=1}^{n} c_i(k) = H \times A$$

where q is the number of poor.[21] This feature has an interesting policy implication for inter-temporal analysis. A certain reduction in M_0 may occur either by reducing H or by reducing A. This difference cannot be understood by merely looking at M_0. If a reduction in M_0 occurs merely as the result of a reduction in the number of people who are marginally poor, then H decreases but A may not. On the other hand, if a reduction in M_0 is the result of a reduction in the deprivation of the poorest of the poor, then A decreases but H may not.[22]

The second feature of M_0 is that if the entire population is divided into m mutually exclusive and collectively exhaustive groups, then the overall M_0 can be expressed as a weighted average of the M_0 values of m sub-groups, where the weights are the respective population shares. We denote the achievement matrix, the population, and the adjusted headcount ratio of sub-group ℓ by X^{ℓ}, n^{ℓ}, and $M_0(X^{\ell})$, respectively. Then the overall M_0 can be expressed as

$$M_0 = \text{MPI} = \sum_{\ell=1}^{m} \frac{n^{\ell}}{n} M_0(X^{\ell}).$$

This feature is also known as sub-group decomposability and is useful for understanding the contribution of different sub-groups to overall poverty levels.[23] Note that the contribution of a sub-group to overall poverty depends both on the poverty level of that sub-group and that sub-group's population share.

21 This feature is analogous to that of the poverty gap ratio, which is similarly expressed as a product of the headcount ratio and the average income gap ratio among the poor.

22 Apablaza and Yalonetzky (2014) have shown that the change in M_0 can be expressed as $\Delta M_0 = \Delta H + \Delta A + \Delta H \times \Delta A$, where Δx is referred to as change in x.

23 See Foster, Greer and Thorbecke (1984) for a discussion of this property.

The third feature of M_0 is that it can be expressed as an average of the censored headcount ratios of indicators weighted by their relative weight. The censored headcount ratio of an indicator is the proportion of the population that is multidimensionally poor and is simultaneously deprived in that indicator. Let us denote the censored headcount ratio of indicator j by h_j. Then M_0 can be expressed as

$$M_0 = \text{MPI} = \sum_{j=1}^{d} w_j h_j = \sum_{j=1}^{d} w_j \left[\frac{1}{n} \sum_{i=1}^{n} g_{ij}(k) \right].$$

where $g_{ij}(k) = g_{ij}$ if $c_i \geq k$ and $g_{ij}(k) = 0$, otherwise. Similar relationships can be established between A and deprivations among the poor. Let us denote the proportion of poor people deprived in indicator j by h_j^p Then, dividing both sides of the above relationship by H, we find

$$A = \frac{MPI}{H} = \sum_{j=1}^{d} w_j \frac{h_j}{H} = \sum_{j=1}^{d} w_j h_j^p.$$

Breaking down poverty in this way allows an analysis of multidimensional poverty to depict clearly how different indicators contribute to poverty and how their contributions change over time. Let us denote the contribution of indicator j to M_0 by ϕ_j. Then, the contribution of indicator j to M_0 is

$$\phi_j = w_j \frac{h_j}{MPI} = w_j \frac{h_j^p}{A}$$

Appendix 2: Redundancy Analysis

Table A2.1 Redundancy Test of Uncensored Headcount Ratios, 2015/16

	Housing conditions	Cooking fuel	Asset ownership	Bank account	Safe drinking water	Living conditions	Child protection	Learning	Nutrition
Cooking fuel	0.371								
Asset ownership	0.256	0.276							
Bank account	0.168	0.351	0.356						
Safe drinking water	0.069	0.328	0.286	0.206					
Living conditions	0.211	0.323	0.188	0.248	0.231				
Child protection	0.079	0.236	0.152	0.096	0.038	0.275			
Learning	0.236	0.247	0.239	0.204	0.119	0.134	0.247		
Nutrition	0.276	0.400	0.197	0.279	0.179	0.255	0.263	0.209	
Health prevention	0.157	0.158	0.197	0.217	0.162	0.126	0.194	0.421	0.169

Source: Authors' calculations based on data from MICS, 2015/16.

Table A2.2 Redundancy Test of Censored Headcount Ratios, 2015/16

	Learning	Child protection	Living conditions	Housing conditions	Cooking fuel	Asset ownership	Bank account	Safe drinking water	Nutrition
Child protection	0.365								
Living conditions	0.209	0.407							
Housing conditions	0.573	0.151	0.358						
Cooking fuel	0.455	0.268	0.48	0.434					
Asset ownership	0.689	0.167	0.295	0.358	0.346				
Bank account	0.523	0.128	0.383	0.279	0.442	0.439			
Safe drinking water	0.423	0.123	0.405	0.178	0.344	0.375	0.312		
Nutrition	0.289	0.388	0.591	0.407	0.549	0.327	0.417	0.372	
Health prevention	0.585	0.286	0.262	0.318	0.292	0.412	0.41	0.468	0.312

Source: Authors' calculations based on data from MICS, 2015/16.

Table A2.3 Censored Headcount Ratios by Provinces, 2015/16

	Learning			Child Protection			Living Conditions			Housing			Cooking Fuel		
	Mean	CI (95%)		Mean	CI (95%)		Mean	CI (95%)		Mean	CI (95%)		Mean	CI (95%)	
Buriram	10.9%	8.8%	12.9%	2.0%	0.4%	3.7%	8.9%	5.8%	11.9%	0.6%	0.2%	1.0%	8.4%	5.7%	11.1%
Kalasin	12.8%	10.4%	15.3%	4.7%	2.9%	6.6%	22.9%	18.9%	26.9%	2.9%	1.2%	4.6%	23.2%	18.9%	27.6%
Kanchanaburi	14.3%	11.7%	16.9%	4.0%	2.0%	6.0%	9.2%	6.8%	11.7%	2.7%	1.4%	3.9%	3.1%	1.7%	4.6%
MHS	18.2%	13.7%	22.7%	1.8%	0.4%	3.1%	2.3%	1.0%	3.7%	11.3%	7.0%	15.7%	20.0%	13.5%	26.5%
Nakhon Phanom	14.0%	11.4%	16.6%	2.5%	1.2%	3.8%	16.6%	12.7%	20.5%	2.8%	0.9%	4.6%	20.0%	14.8%	25.3%
Narathiwat	18.1%	15.4%	20.8%	1.7%	0.9%	2.5%	4.2%	2.5%	5.8%	2.1%	0.8%	3.4%	0.1%	-0.1%	0.3%
Pattani	18.3%	15.3%	21.4%	11.9%	3.4%	20.5%	8.2%	6.0%	10.5%	1.6%	0.6%	2.6%	2.2%	0.6%	3.8%
Ratchaburi	11.8%	8.9%	14.6%	4.2%	0.1%	8.3%	3.1%	1.8%	4.3%	4.7%	-1.9%	11.2%	1.2%	0.2%	2.2%
Satun	15.2%	12.4%	17.9%	1.4%	0.5%	2.3%	2.9%	1.5%	4.2%	1.1%	0.3%	1.8%	1.3%	0.4%	2.1%
Sisaket	10.3%	7.9%	12.8%	3.4%	1.5%	5.2%	9.6%	6.3%	12.9%	5.3%	2.2%	8.5%	14.0%	10.4%	17.6%
Songkhla	13.0%	10.7%	15.4%	2.5%	1.3%	3.7%	6.1%	3.8%	8.3%	0.8%	0.1%	1.5%	0.7%	-0.1%	1.5%
Tak	16.9%	12.9%	21.0%	4.9%	2.3%	7.5%	4.6%	2.9%	6.3%	14.3%	6.5%	22.0%	20.3%	12.1%	28.5%
Yala	8.4%	5.4%	11.4%	0.5%	-0.1%	1.1%	3.4%	2.1%	4.7%	0.6%	-0.1%	1.3%	0.0%	0.0%	0.0%
Yasothon	13.2%	10.5%	15.9%	2.1%	0.7%	3.5%	9.9%	6.1%	13.7%	0.3%	-0.1%	0.7%	13.0%	9.8%	16.2%

Source: Authors' calculations based on data from MICS, 2015/16.

Table A2.3 Censored Headcount Ratios by Provinces, 2015/16 (Cont.)

	Asset Ownership			Bank Account			Safe drinking water			Nutrition			Health Prevention		
	Mean	CI (95%)		Mean	CI (95%)		Mean	CI (95%)		Mean	CI (95%)		Mean	CI (95%)	
Buriram	2.4%	1.2%	3.5%	2.8%	1.3%	4.4%	0.8%	0.0%	1.5%	4.8%	2.6%	6.9%	8.6%	6.1%	11.1%
Kalasin	4.6%	3.0%	6.2%	2.0%	0.8%	3.1%	0.6%	-0.5%	1.6%	30.0%	26.2%	33.9%	8.7%	6.4%	11.1%
Kanchanaburi	2.3%	1.1%	3.6%	2.3%	1.1%	3.6%	0.0%			8.0%	5.2%	10.8%	10.0%	7.6%	12.5%
MHS	13.4%	7.5%	19.4%	11.5%	5.9%	17.0%	0.1%	0.0%	0.3%	9.1%	4.7%	13.6%	8.4%	6.1%	10.7%
Nakhon Phanom	3.1%	1.0%	5.2%	2.4%	-0.6%	5.4%	1.2%	-0.6%	3.1%	25.2%	19.7%	30.6%	11.7%	8.6%	14.8%
Narathiwat	6.0%	3.6%	8.4%	8.4%	6.0%	10.9%	2.3%	1.2%	3.4%	15.1%	10.4%	19.8%	20.6%	15.7%	25.5%
Pattani	9.9%	6.8%	12.9%	8.5%	6.2%	10.8%	0.3%	-0.1%	0.6%	25.9%	18.7%	33.1%	20.8%	17.7%	23.8%
Ratchaburi	3.6%	0.1%	7.1%	6.3%	-1.3%	14.0%	2.1%	-1.7%	5.9%	4.8%	1.1%	8.6%	6.7%	4.8%	8.6%
Satun	5.1%	3.0%	7.1%	2.3%	1.1%	3.6%	0.4%	0.0%	0.7%	4.0%	2.8%	5.3%	10.9%	8.6%	13.2%
Sisaket	4.8%	2.6%	7.0%	2.9%	1.0%	4.7%	0.6%	-0.5%	1.6%	9.1%	6.3%	12.0%	7.0%	4.9%	9.1%
Songkhla	4.5%	2.7%	6.3%	2.9%	1.1%	4.6%	0.7%	-0.4%	1.9%	7.6%	5.1%	10.2%	10.2%	7.9%	12.5%
Tak	16.5%	8.6%	24.4%	15.6%	9.2%	22.0%	2.1%	-0.7%	4.8%	10.0%	6.3%	13.8%	10.5%	6.6%	14.5%
Yala	2.7%	1.2%	4.2%	2.8%	1.2%	4.4%	0.8%	-0.1%	1.7%	5.6%	3.9%	7.4%	6.7%	4.8%	8.6%
Yasothon	1.9%	0.5%	3.3%	1.5%	-0.1%	3.1%	0.0%			11.3%	7.4%	15.1%	6.9%	4.4%	9.5%

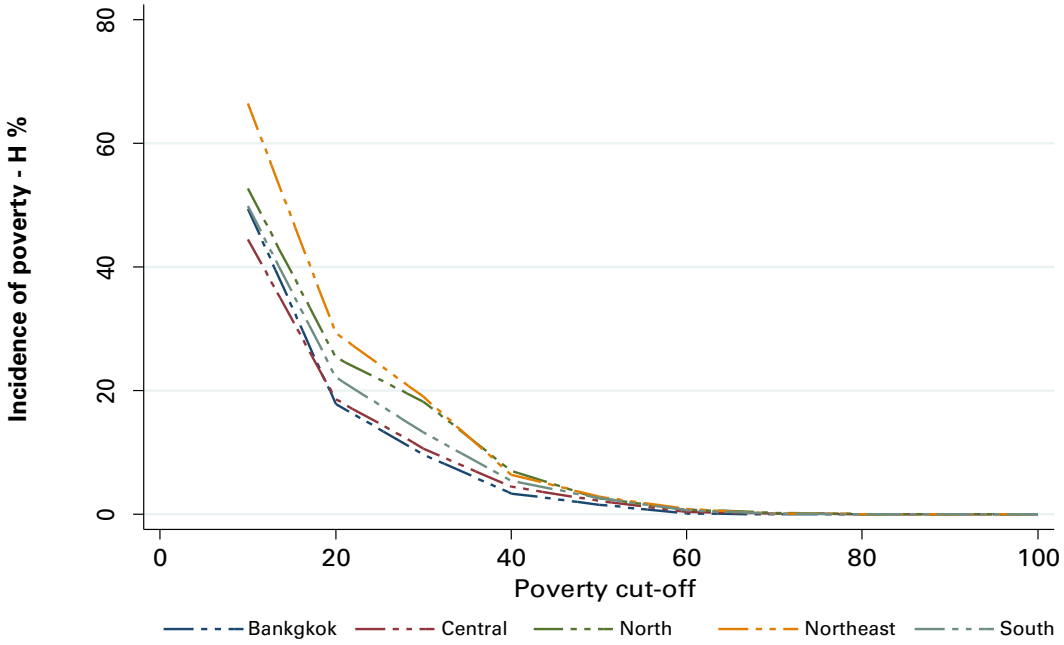
Source: Authors' calculations based on data from MICS, 2015/16.

Appendix 3: Robustness of MPI to .Alternative Weights and Poverty Cutoffs

Robustness checks were conducted in order to test the sensitivity of the level and composition of the measure to small changes in weights and poverty cutoff and validate that the measure is robust and can be legitimately used for policy purposes.

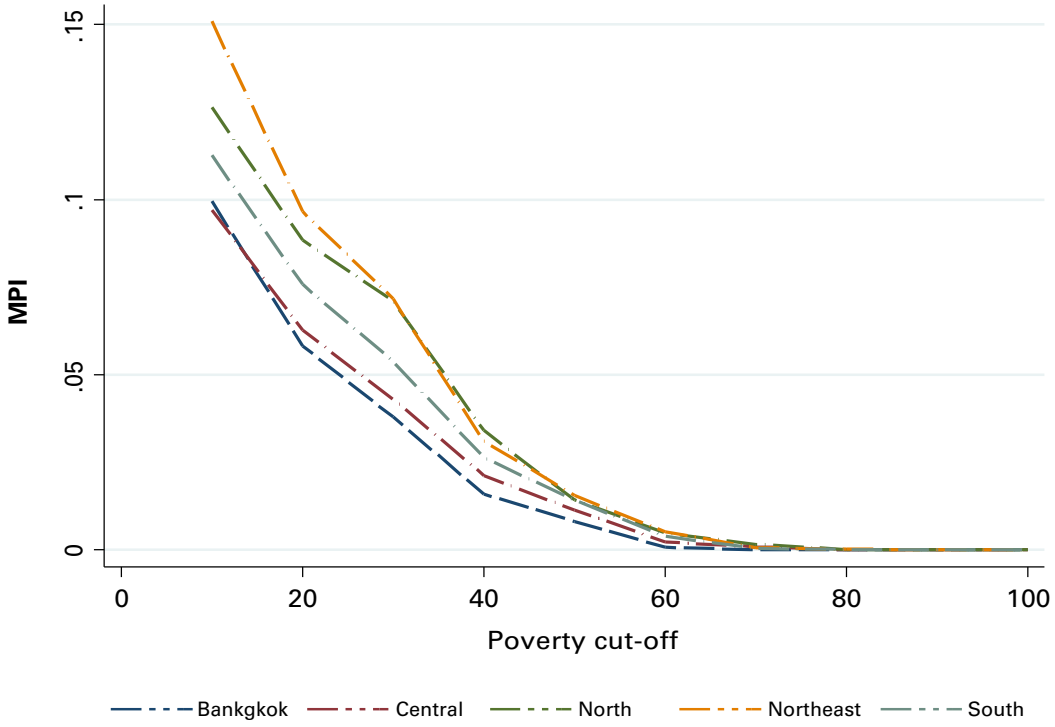
Figures A3.1 and A3.2 present the dominance analysis of the intensity and the child multidimensional poverty index between regions with different levels of poverty cutoff. As can be seen in these figures, the Northeast region has the highest levels of incidence when using a poverty cutoff lower than 35%; however, after this point there is always an overlap between the Northeast and the North regions.

Figure A3.1 Dominance Analysis of the Incidence of Child Multidimensional Poverty in Thailand among Regions for Various Poverty Cutoffs, 2015/16



Source: Authors' calculations based on data from MICS 2015/16.

Figure A3.2 Dominance Analysis of the Child Multidimensional Poverty Index in Thailand among Regions for Various Poverty Cutoffs, 2015/16



Source: Authors' calculations based on data from MICS 2015/16.

Table A3.1 presents the Spearman and Kendall rank correlation coefficients between the regions' rankings using the selected poverty cutoff for the Child MPI, 25%, and the ranking for alternative poverty cutoffs from 15% to 45%. It can be seen that the Spearman coefficient is equal to 1.00 for poverty cutoffs from 15% to 30%. The Kendall coefficient is equal to 1.00 for these same poverty cutoffs, implying that all the pairs of comparisons are concordant. At higher values of the poverty cutoff, the coefficients reduce to 0.6 and 0.7 for Kendall and Spearman, respectively. This is because the ordering of the regions does not change until 35%, where the Northeast and the North regions overlap.

Table A3.1 Correlation among Regional Rankings for Different Poverty Cutoffs, 2015/16

Poverty Cutoff	Coefficient	Poverty Cutoff = 25%
15%	Spearman	1.000
	Kendall	1.000
20%	Spearman	1.000
	Kendall	1.000
30%	Spearman	1.000
	Kendall	1.000
35%	Spearman	0.700
	Kendall	0.600
40%	Spearman	0.700
	Kendall	0.600
45%	Spearman	0.700
	Kendall	0.600

Source: Authors' calculations based on data from MICS 2015/16.

When the rank correlation coefficients Spearman and Kendall were calculated for different combinations of weights (each dimension taking the weight of 40% and the other three 20%), the analysis revealed that, for the three structures, the Spearman coefficient is higher than 0.7 and the Kendall Tau-b coefficient is higher than 0.6, thus, more than 60% of the comparisons are concordant in each case (Table A3.2). The robustness of the measure depended on which dimension had the highest weight; when the dimension of education received the highest weight, the number of concordant pairs was 60%, since this dimension is the one that contributes the most (in the original version, equal weights) and the indicator of learning is the one with the highest deprivation. Therefore, when a higher weight was given to this dimension, its contribution increased, and the configuration of poverty also changed.

Table A3.2 Correlation among Regions Ranks for Different Weight Structures, 2015/16

			MPI Weights 1	MPI Weights 2	MPI Weights 3	MPI Weights 4
			Equal weights: 25% each dimension	40% Education 20% Health 20% LS 20% Child welfare	40% Health 20% Education 20% LS 20% Child welfare	40% LS 20% Education 20% Health 20% Child welfare
MPI Weights 2	40% Education 20% Health 20% LS 20% Child welfare	Spearman	0.7			
		Kendall	0.6			
MPI Weights 3	40% Health 20% Education 20% LS 20% Child welfare	Spearman	0.9	0.6		
		Kendall	0.8	0.4		
MPI Weights 4	40% LS 20% Education 20% Health 20% Child welfare	Spearman	1.0	0.7	0.9	
		Kendall	1.0	0.6	0.8	
MPI Weights 5	40% Child welfare 20% Education 20% Health 20% Health	Spearman	1.0	0.7	0.9	1.0
		Kendall	1.0	0.6	0.8	1.0

Source: Authors' calculations based on data from MICS 2015/16.

However, rank correlations are not ideal for situations, such as the present, in which the number of regions is low. Therefore, a better way to evaluate the robustness of the measure is to assess pairwise comparisons using standard errors. The percentage of robust pairwise combinations by region showed that 70% of the pairwise region comparisons are robust to changes in the dimensions' weights from 20% to 40% per dimension. In the case of variations in the poverty cutoff, 80% of the pairwise regional comparisons are robust to changes for poverty cutoffs from 15% to 45%. So, the structure of the Thailand Child MPI is robust to a plausible range of weights and poverty cutoffs.

Appendix 4: Process of Designing the Child MPI for Thailand

The decision to develop a Child MPI follows naturally from the commitment of the country to improve the living conditions of children, leading to progress for the country as a whole. Developing Thailand's Child MPI entailed bringing together stakeholders from across government and academia. A Steering Committee of representatives from relevant ministries and the National Statistics Office (NSO), chaired by NESDC, was consulted throughout the process and provided inputs to the construction of the Child MPI. The process was aided by inputs through expert workshops, which included relevant ministries, UNICEF, and academia, led by Dr. Somchai Jitsuchon of the Thailand Development Research Institute (TDRI). This political process was complemented by technical capacity building with statisticians from NESDC, NSO and TDRI, led by the Oxford Poverty and Human Development Initiative (OPHI) at the University of Oxford and UNICEF Thailand.

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