

Child Poverty in Thailand: A Study Using Non-income and Income Concepts

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This report is based on two research projects financed by the UNICEF office of Thailand. The first research project, which was completed in 2008, was aimed at producing a set of indicators on deprivation that measure Thai children's poverty situation that go beyond the monetary dimension. The indicators were computed using data from the Multiple Indicators Cluster Survey (MICS), which was a pioneer survey conducted by the National Statistical Office (NSO) of Thailand with financial support from UNICEF. The basic set of deprivation indices were computed based on methodology developed in the University of Bristol's "child poverty study." Under that method, absolute poverty among children is measured by deprivation of human needs in many areas (food, safe drinking water, sanitation facilities, health, shelter, education, information, access to services). However, we follow an NSO-UNICEF report in grouping the various MICS indices into eight categories as follows:

1. Nutrition
2. Child health
3. Reproductive health
4. Child development
5. Education
6. Environment
7. Child protection
8. Child vulnerability, including to HIV/AIDS, and orphanhood

This basic set of deprivation indices was further investigated to find correlations with Thailand's official monetary poverty indicators (using the Socio-Economic Survey, or SES) in the same year (2006). This exercise has important policy implications. For those indices which were strongly positively correlated with monetary poverty, finding ways to increase households' income should suffice to simultaneously reduce deprivation. For the remaining indices, which can be either reversely correlated or uncorrelated with monetary poverty, we need policy measures that are specially designed to correct the problem, and should not expect that increased income would help.



The next task is to construct different levels of composite child deprivation indices. The first level is the computation of composite deprivation indices of the eight categories following the above-mentioned NSO-UNICEF list. The eight composite indices were further lumped into a single child composite index for each household. The composite indices for the first two levels are classified according to their severity. The third level of the composite indices is at the provincial or the regional levels, where the household deprivation indices are further aggregated into provincial or regional indices.

Since the MICS survey in 2006 was a special survey that might not be routinely conducted on a regular basis, the issue of sustaining the monitoring of child deprivation arose. The second research project was initiated to examine the suitability of using another similar survey, the Child and Youth Survey (CYS), which is routinely conducted by NSO to produce child deprivation indices of the same nature as those using MICS. The study used CYS for 2008 to compare the data with MICS 2006, and reported the findings. Of 61 basic deprivation indices in MICS, only 20 can be reproduced using CYS (see Table 1). These matched indices fall into six NSO-UNICEF categories; the missing two are nutrition and reproductive health because the questions in the questionnaire that were needed to compute the relevant indicators are not present in the CYS. Since the numbers of matched

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Table 1 Comparison of deprivation variables from MICS and CYS

MICS	Indicators	CYS
Nutrition		
MICS 6	Underweight prevalence	X
MICS 7	Stunting prevalence	X
MICS 8	Wasting prevalence	X
MICS 45	Timely initiation of first breastfeeding	X
MICS 15	Exclusive breastfeeding rate	X
MICS 16	Continued breastfeeding rate at 20–23 months	X
MICS 17	Timely complementing feeding rate	X
MICS 18	Frequency of complementing feeding	X
MICS 19	Adequately fed infants	X
MICS 41	Iodized salt consumption	X
MICS 9	Low birth weight infants	X
MICS 10	Infants weighed at birth	X
Child health		
MICS 25	Tuberculosis immunization coverage	X
MICS 26	Polio immunization coverage	X
MICS 27	Diphtheria, pertussis and tetanus (DPT) immunization coverage	X
MICS 28	Measles immunization coverage	X
MICS 29	Hepatitis B immunization coverage	X
MICS 31	Fully immunized children	X
MICS 32	Neonatal tetanus protection	X
MICS 33	Use of oral rehydration therapy (ORT)	X
MICS 34	Home management of diarrhea	X
MICS 35	Received ORT or increased fluids and continued feeding	X
MICS 23	Care-seeking for suspected pneumonia	X
MICS 22	Antibiotic treatment of suspected pneumonia	X
MICS 24	Solid fuels	√
Environment		
MICS 11	Use of improved drinking water sources	√
MICS 12	Use of improved sanitation facilities	√
MICS 13	Water treatment	√
MICS 14	Disposal of child's feces	X
MICS 95	Slum household	√
Reproductive health		
MICS 21	Contraceptive prevalence rate	X
MICS 20	Antenatal care	X
MICS 44	Content of antenatal care	X
MICS 4	Skilled attendant at delivery	X
MICS 5	Institutional deliveries	X
Child development		
MICS 46	Support for learning	√
MICS 47	Father's support for learning	√
MICS 48	Support for learning: children's books	√
MICS 49	Support for learning: non-children's books	√
MICS 50	Support for learning: materials for play	√
MICS 51	Non-adult care	√
Education		
MICS 52	Pre-school attendance	√
MICS 54	Net intake rate in primary education	√
MICS 55	Net primary school attendance rate	√
MICS 56	Net secondary school attendance rate	√
MICS 60	Female adult literacy rate	√
Child protection		
MICS 67_1	Marriage before age 15	X
MICS 67_2	Marriage before age 18	X
MICS 68	Young women aged 15–19 currently married/in union	X
MICS 69_1	Spousal age difference: age 15–19 years	X
MICS 69_2	Spousal age difference: age 20–24 years	X
MICS 101	Child disability	X
Vulnerable children		
MICS 75	Prevalence of orphans	√
MICS 76	Prevalence of vulnerable children	√
MICS 78	Children's living arrangements	√
MICS 81	External support for children orphaned and made vulnerable	X

MICS	Indicators	CYS
HIV and AIDS		
MICS 82	Comprehensive knowledge about HIV prevention among young people	√
MICS 86	Attitude toward people with HIV and AIDS	X
MICS 89	Knowledge of mother-to-child transmission of HIV	X
MICS 90	Counseling coverage for the prevention of mother-to-child transmission of HIV	X
MICS 91	Testing coverage for the prevention of mother-to-child transmission of HIV	X

indicators are too few, we are not able to compute composite indices using *CYS* as we did with *MICS*. Another limitation is that we cannot repeat the exercise of finding correlation between the *MICS*-like indicators from the *CYS* with monetary poverty from *SES*, as the two surveys seem to use a different sample frame.

A comparison of *MICS* 2006 with *CYS* 2008 using individual *MICS*-like basic deprivation indices reveals that the child deprivation situation generally improved during the period 2006-2008. However, at the provincial level, the comparison of composite child deprivation indicators shows that the situation in some provinces was worse in spite of the general improvement at the country level. Detailed investigation of changes in individual deprivation indicators produces many interesting findings: for example, more children attended school and mostly at younger ages; families took care of their children better, in terms of both educational care and living care; and children were generally less vulnerable to being orphaned, or having parents or adults who were suffering from chronic illnesses.

The report concludes with discussions of some policy implications and possible further studies. Two policy implications stand out. First, policymakers must not concentrate their attention on monetary poverty only, as there are many *MICS* deprivation indices that are not correlated with monetary poverty (Figure 1). Second, budget allocation into geographical areas, such as at the provincial and the regional levels, should take into account the areas' general deprivation situation as well as deprivation specific to those areas. As for possible further studies, the findings of the report

suggest that more detailed investigation should be conducted regarding those deprivations not related to income, and that more in-depth analysis is needed at the provincial level, as well as *maeso* analysis.

To study the linkages between *MICS/CYS* non-monetary deprivation indices with the traditional monetary poverty indices we need to combine the *MICS/CYS* data set with the income and expenditure household survey data. We chose the *SES* conducted by *NSO* because it is the flagship data set for calculating official monetary poverty in Thailand. The linkages are possible at the national, regional, and provincial levels.

There are potentially many methods to examine the links between the number of primary sample unit (*PSU*)-level deprivation from *MICS/CYS* and income poverty from *SES*. An odds ratio was chosen to calculate the links because it is an easy-to-understand correlation index. For example, if there is some positive relationship between, say, a household's use of solid fuels and income poverty, then income-poor households would be more likely to use solid fuels when compared with non-poor households. Figure 2 illustrates the poverty status of the frequency counts of households falling into these categories, as depicted by A, B, C and D.

The ratio measures the relative probability of a family being deprived, which is the comparison of the deprivation probability when that family is poor against when it is not poor. An alternative interpretation can go the other way around: the odds ratio measures relative probability of a family being income poor, compared with the case when the family is deprived versus when it is not deprived.

Figure 1 Underlying causal factors of child poverty and deprivation

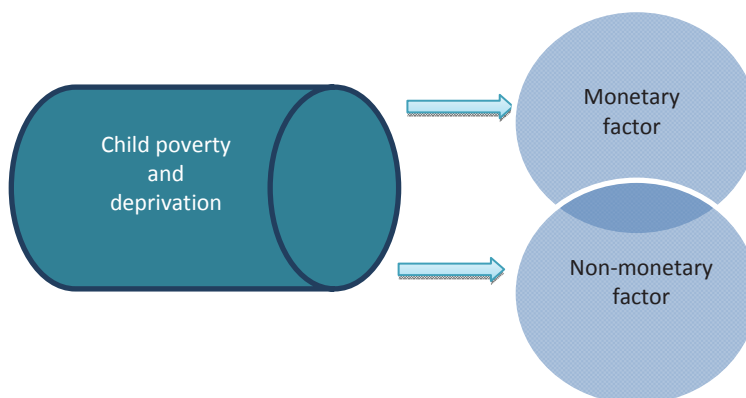
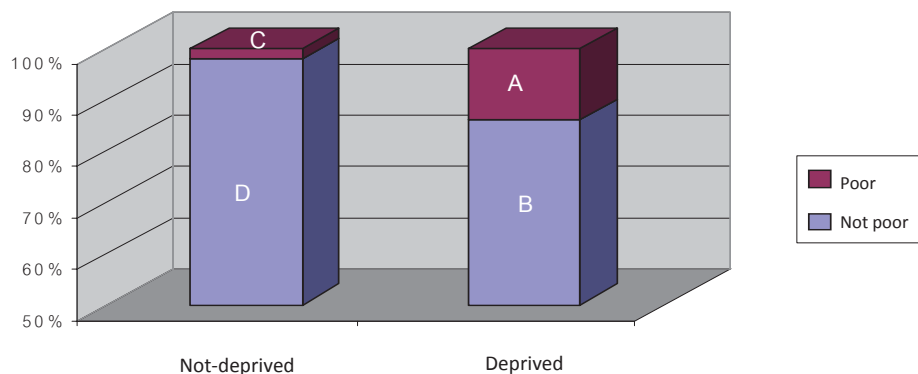


Figure 2 MICS 24 deprivation (use of solid fuels), by poverty level



	SES income poor	SES income non-poor
MICS deprived	A	C
MICS not deprived	B	D

Thus, the odds ratio is computed as follows:

$$\text{Odds ratio} = (A/B)/(C/D)$$

If the odds ratio equals 1, then there is no probability difference of being deprived and being poor. If the ratio exceeds 1, then there is a high probability that a poor family is deprived, or that a deprived family is poor. When the ratio falls below 1, the probability relationship is reversed: a poor family is more likely to not be deprived, or a deprived family not poor. In the solid fuel example, 14 percent of the income poor households indeed used solid fuels while only 2 percent of the income non-poor households did. The odds ratio therefore is: $(14/86)/(2/98) = 7.98$. Translated, that indicates that the income poor households were about eight times more likely to use solid fuels than the non-poor ones. In other words, deprivation of proper cooking fuel had much to do with being income poor. The two concepts thus relate quite closely.

CHANGES IN CHILD DEPRIVATION DURING THE PERIOD 2006-2008

This section reports on changes in the child deprivation situation during the period 2006-2008, by comparing the indices from MICS 2006 with those computed from CY5 2008. The changes can only be done for the matched 20 deprivation indices. Two ways of making the comparisons are possible, one between composite indices of the two years; the other, between individual matched indicators.

Changes in composite deprivation indices during the period 2006-2008

The procedure for computing composite indices is similar to what was done in the 2006 MICS survey. As shown in Figure 3, three levels of composite indices are computed, namely categorical composite indices,

household composite indices and provincial composite indices.

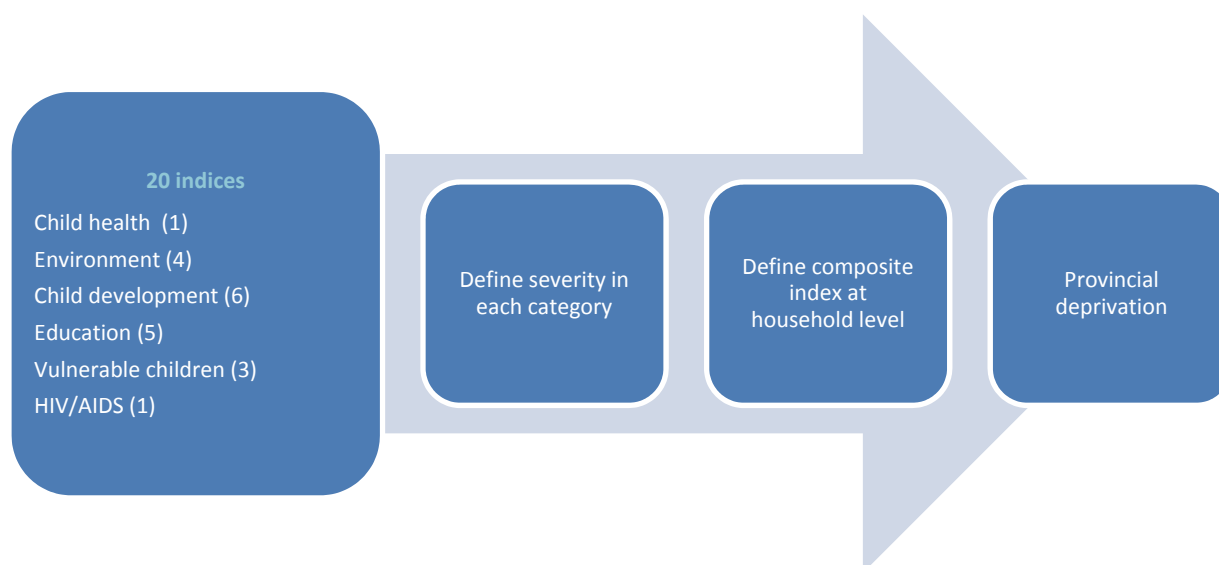
The 20 matched variables were classified into six subgroups:

1. Child health – 1 indicator
2. Environment – 4 indicators
3. Child development – 6 indicators
4. Education – 5 indicators
5. Vulnerable children – 3 indicators
6. HIV and AIDS – 1 indicator

The 20 indicator variables in CY5 were further classified according to their correlations with income poverty, as explored previously with the MICS counterparts, as shown in Tables 2 and 3. Note that the positively correlated CY5 indicators are classified by their MICS counterparts' odds ratios (in relation to income poverty) equal to or more than 1.5, the reversely correlated CY5 by odds ratios below 0.75 and the uncorrelated CY5 by odds ratios between 0.75 and 1.5. The 1.5 and 0.75 thresholds, rather than a threshold of 1.0, was used to account for statistical errors.

Criteria for determining the severity of the categorical composite indices are shown in Tables 4 and 5 and reflect the new classification of household composite indicators.



Figure 3 Steps for constructing composite child deprivation indices**Table 2 Number of CYS-MICS deprivation indices, by correlation with income poverty**

	Positively correlated	Uncorrelated	Reversely correlated	Total
Child health	1	-	-	1
Environment	4	-	-	4
Child development	4	1	1	6
Education	3	2	-	5
Vulnerable children	1	2	-	3
HIV and AIDS	-	1	-	1
Total	13	6	1	20

Table 3 CYS-MICS indices and odds ratios of MICS indices with income poverty

MICS indices	Categories/description	Odds ratio	Odds ratio group (correlation)
Child health			
MICS 24	Solid fuels	6.90	Positive
Environment			
MICS 11	Use of improved drinking water sources	3.60	Positive
MICS 12	Use of improved sanitation facilities	3.46	Positive
MICS 13	Water treatment	1.87	Positive
MICS 95	Slum household	3.11	Positive
Child development			
MICS 46	Support for learning	1.80	Positive
MICS 47	Father's support for learning	2.97	Positive
MICS 48	Support for learning: children's books	3.03	Positive
MICS 49	Support for learning: non-children's books	1.53	Uncorrelated
MICS 50	Support for learning: materials for play	0.70	Reverse correlated
MICS 51	Non-adult care	2.06	Positive
Education			
MICS 52	Pre-school attendance	1.92	Positive
MICS 54	Net intake rate in primary education	1.26	Uncorrelated
MICS 55	Net primary school attendance rate	1.32	Uncorrelated
MICS 56	Net secondary school attendance rate	2.66	Positive
MICS 60	Female adult literacy rate (age 15–24)	2.54	Positive
Vulnerable children			
MICS 75	Prevalence of orphans	1.21	Uncorrelated
MICS 76	Prevalence of vulnerable children	1.23	Uncorrelated
MICS 78	Children's living arrangements	1.71	Positive
HIV and AIDS			
MICS 82	Comprehensive knowledge about HIV prevention among young people	0.81	Uncorrelated

Table 4 Numbers of MICS/CYS indices and deprivation possibilities for each category

Category	No. of indices	Pass/not deprived	Fail	
			Deprived	Severely deprived
Child health	1	√		√
Environment	4	√	√(1-2)	√(3-4)
Child development	6	√	√(1-3)	√(4-6)
Education	5	√	√(1-3)	√(4-5)
Child vulnerability	3	√	√(1)	√(2-3)
HIV and AIDS	1	√		√

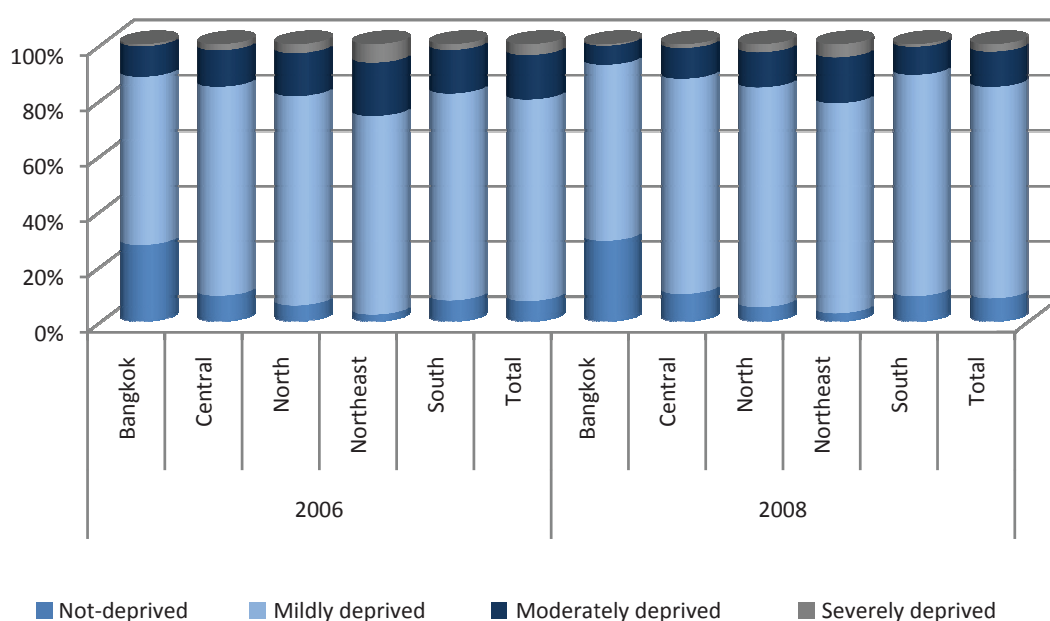
Table 5 Criteria for calculating child deprivation index at the household level

Deprivation level for composite index	No. of severely deprived categories	No. of deprived categories	No. of not-deprived categories
Severely deprived	3		
	1-2	3-4	0-2
Moderately deprived	1-2	0-2	3-4
	0	4-6	0-2
Mildly deprived	0	1-3	3-5
Not deprived	0	0	6

Using the criteria listed in Tables 4 and 5, the composite child deprivation indices for 2006 and 2008 were computed and compared. Figure 4 reflects the distribution of household-level child deprivation indices, by region. There were clear improvements over the two years due to a smaller proportion of households falling into the severe or moderate deprivation category and a larger proportion of those who were mildly deprived or had no deprivation. This was true almost uniformly across all regions.

As in the investigation into the child deprivation situation using the MICS survey in 2006, it is always

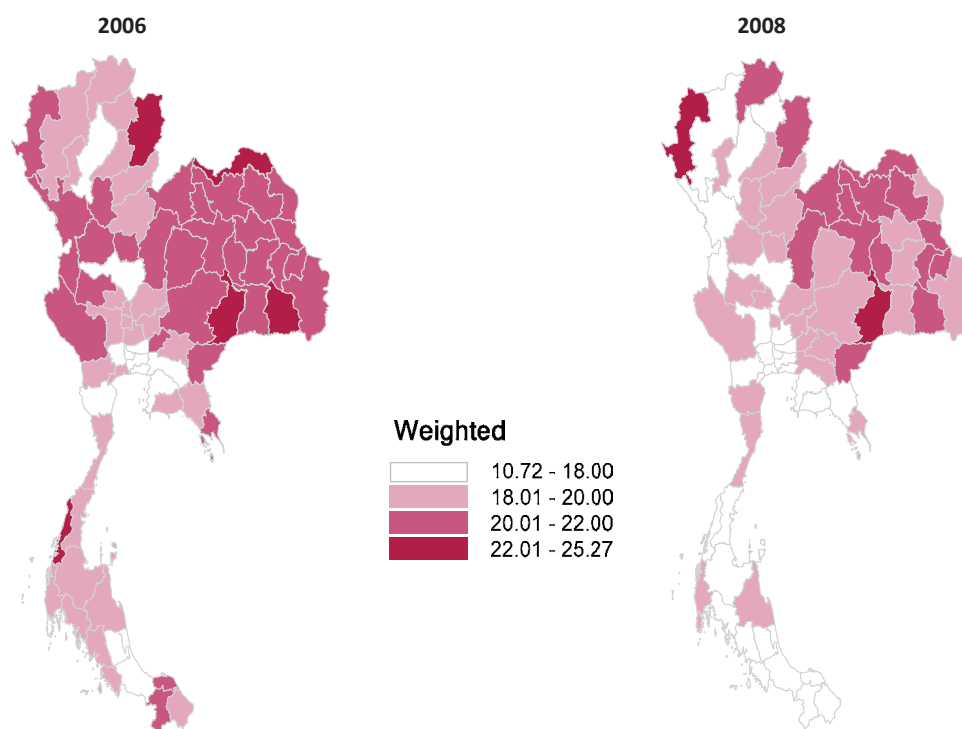
important to be able to identify geographical areas where the problems were more serious, and/or where the problems were getting more serious during the period 2006-2008. Regional distribution as shown above is certainly not very useful. We therefore present the household composite deprivation indices at the provincial level in Figure 5. The general improvement in child deprivation at the regional level carries through to the provincial level. There was a greater number of provinces with a smaller number of poor deprivation indicators in 2008 than in 2006. However, there are some additional findings arising from detailed investigation at the

Figure 4 Child deprivation index by region, 2006-2008

provincial level. For example, Mae Hong Son Province shows marked deterioration in child deprivation during the period 2006-2008. In 2006, the province did not make it into the top 10 most serious problems, but was ranked top in 2008. Closer investigation into individual MICS indicators shows that Mae Hong Son was worse in 14 of 20 indicators, indicating a more systematic deterioration rather than short-term limited effects.

The above finding about Mae Hong Son Province has a clear and powerful policy implication, as it once again emphasizes the inadequacy of using general improvement of child deprivation, as there are often areas suffering more from deprivation in spite of general improvement. More still needs to be done to ensure that these areas get the proper attention from policymakers that they deserve.

Figure 5 Provincial composite child deprivation index, 2006 and 2008



Weighted index				
Rank	Provinces	2008	Provinces	2006
1	Mae Hong Son	25.27	Srisaket	24.75
2	Buri Ram	24.42	Buri Ram	22.73
3	Nongkhai	21.91	Ranong	22.56
4	Udon Thani	21.44	Nongkhai	22.23
5	Loei	21.12	Nan	22.11
6	Nongbua Lamphu	21.07	Nongbua Lamphu	22.00
7	Mukdahan	20.98	Kanchanaburi	21.97
8	Khon Kaen	20.84	Trat	21.94
9	Chiang Rai	20.84	Roi Et	21.94
10	Sa Kaeo	20.80	Yasothon	21.84
11	Maharakham	20.64	Nakhon Ratchasima	21.79
12	Amnat Charoen	20.63	Sa Kaeo	21.78
13	Yasothon	20.59	Udon Thani	21.75
14	Srisaket	20.50	Kalasin	21.75
15	Phetchabun	20.50	Phichit	21.66
16	Nan	20.08	Mae Hong Son	21.62
17	Kalasin	20.06	Yala	21.59
18	Surin	19.99	Maharakham	21.50
19	Lop Buri	19.90	Nakhon Phanom	21.46
20	Phitsanulok	19.75	Kamphaengphet	21.13

Source: Calculated from MICS 2006 and CYS 2008. Thailand Development Research Institute.

