TAKING THE PULSE OF
POVERTY AND INEQUALITY
IN THAILAND

WORLD BANK GROUP

70
1949
2019
Years

TOGETHER WE CAN
TRANSFORM
THAILAND

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ABBREVIATIONS AND ACRONYMS

ASEAN	Association of Southeast Asia Nations	NSO	National Statistics Office (Thailand)
B	Thai Baht	OECD	Organisation of Economic Co-operation and Development
EAP	East Asia and Pacific	PHL	Philippines
GDP	Gross Domestic Product	PISA	Program for International Student Assessment
GIC	Growth Incidence Curve	PPP	Purchasing Power Parity
HOI	Human Opportunity Index	SA	Social Assistance
IDN	Indonesia	SES	Socio-Economic Survey (Thailand)
IPL	International Poverty Line	SOE	State-Owned Enterprise
KHM	Cambodia	TDRI	Thailand Development Research Institute
LAO	Lao PDR	THA	Thailand
LMIC	Lower Middle-Income Class	UMIC	Upper Middle-Income Class
MMR	Myanmar	VNM	Vietnam
MPM	Multi-dimensional Poverty Measure	WBG	World Bank Group
MYS	Malaysia	WIR	World Inequality Report
NESDC	National Economic and Social Development Council	YoY	Year-on-Year

ACKNOWLEDGEMENTS

OVERVIEW

Over the past three decades, Thailand has made substantial gains on key social and economic development objectives, reflecting its remarkable transition from a low-income to an upper middle-income country in a single generation. Official poverty rates reduced from 65.2 percent in 1988 to 9.85 percent in 2018.

However, over the past few years, household incomes and consumption growth have stalled nationwide, with larger declines among households at the bottom of the income distribution. Thailand's official poverty rate increased in 2016 and again in 2018. These were the fourth and fifth instances official poverty rates increased since 1988, the previous three instances occurring around the time of financial crises. These recent poverty increases in Thailand reveal that households are vulnerable to shocks and poor economic conditions. With a rapidly aging population, a conflict-affected Southern region, low quality of education, and one-third of the labor force still employed in low-productivity agriculture, poverty and equity remain relevant topics for Thailand, its upper middle-income status notwithstanding.

The stagnation in poverty coincides with emerging and shifting economic and environmental challenges in the economy. Over the past few years, Thailand's growth rate has been lower than other large economies in the developing East Asia and Pacific (EAP) region (World Bank, 2019). As of October 2019, Thailand had one of the lowest GDP growth rate in the region, at 2.7 percent. Reductions in tourism and exports also occurred during the past few years. Droughts have affected the livelihoods of farmers who are already typically the poorest.

The external environment is changing not just in Thailand. Across East Asia, countries are facing challenges and changing conditions, as traditional strategies of economic growth are no longer sufficient to sustain the upward trajectory toward high-income aspirations. Growth has been moderating across the region as trade and economic growth have also weakened globally. Emerging economies in the region, including Thailand, must boost productivity growth, harness innovation and new skills, and improve government capacity to reach aspirational goals of attaining high-income status and cultivating predominantly middle-class societies (Mason and Shetty, 2019).

This report reviews recent trends in poverty and equity amid this new environment and the challenges it presents. Notably, the official poverty rate increased in 2016 and 2018, with the increase in 2018 being larger than the one in 2016. While Thailand has a low extreme poverty rate as measured by the International Poverty Line (US$1.90/day 2011PPP), it is the only ASEAN country to experience several increases in poverty since 2000. Recent changes in different types of household incomes and labor market indicators provide clues to the sources of the declines in the bottom of the income distribution. These insights can help identify sources of vulnerability. Though more

will need to be done to combat vulnerability and support a longer-term growth strategy.

How serious are the recent increases in poverty and what do they suggest about emerging trends in household welfare? While the increase in poverty in 2016 was small, the increase in poverty in 2018 was larger and more widespread. Average total household income per capita[1] declined in the period 2015–17, and more so in the lower ends of the distribution. Real farm and business incomes declined in rural and urban households, respectively. Wage income also declined in urban households. Nationally, this signals a reversal in trends from the past. In the period 2007–13, wages, farm incomes, and remittances contributed to poverty reduction, but in the period 2015–17 they became sources of rising poverty. Perceptions data from 2016 and onward also indicate that households were feeling their living conditions worsen.

The current context suggests that Thailand will need to transform. Without active interventions and investments, factors may slowly emerge to become more serious constraints to persistent poverty and inequity reduction, such as employment in the low productivity agriculture sector, an aging society, low education quality, lagging regions, and high wealth inequality. The most recent year for poverty estimates in Thailand is 2018. Poverty and inequality trends beyond this year are not optimistic, given continued low economic growth rates and stagnant wages.

In the short run, vulnerable households need to be better identified and reached more swiftly. Trends in the source of household incomes showed that, amid declining household market incomes, social assistance (SA) income was increasing and buffering households from worse outcomes. However, there is also room for improving the targeting and the reach of SA programs.

Longer-term strategies are also necessary. Among possible policies, equitable investment in the next generation will be paramount. The next generation will be smaller, and will need to be more productive to sustain Thailand's growth and also support the aging cohort. Thai children are growing up on an unlevel playing field. Children in urban areas and Bangkok are more likely to have access to basic goods and services in education, health, and infrastructure, which are all deemed necessary for an individual to realize his/her full potential in society. Reducing inequality of opportunities can set in motion a virtuous cycle. When the outcomes of children become less tied to the circumstances of their birth, or to the characteristics of their parents, relative mobility is high, poverty and inequality traps are broken, and economic growth is stimulated. No country has reached high-income status with pervasive inequality, and even in an upper middle-income country, poverty can persist and reappear. To narrow inequality in outcomes tomorrow, a level playing field must be created for children today.

The structure and a summary of the report are described below.
....

1 Household income data are available only every other year, in the odd years.

PART 1.
RECENT DEVELOPMENTS IN POVERTY AND EQUITY

Part 1 of the report reviews recent trends in poverty and equity based on official estimates from the Government of Thailand, as well as World Bank international monitoring indicators.[2] Of important consequence, recent trends in household consumption and income show a stagnation and reversal in the progress of poverty reduction in Thailand.

Chapter 1 examines recent poverty and inequality trends in Thailand based on official estimates. Official estimates show increases of poverty in 2016 and 2018. Unlike the first few occasions where poverty increased (1998, 2000, and 2008), these more recent increases in poverty did not occur around the time of financial crises. Poverty increased in 2016 in all regions except for Bangkok. In 2017, for the first time, the South became the region with the highest poverty rate. The two provinces with the highest poverty rates are also located in the conflict-affected South. The increase in poverty in 2018 was widespread, this time occurring in all regions and more provinces than in 2016. In 2018, poverty rates in the Central and South regions remained higher than in 2014.

Internationally, Thailand performs well in indicators of well-being, notably having nearly eradicated extreme poverty. **Chapter 2 benchmarks Thailand's poverty and equity indicators to its ASEAN peers.** Among the ASEAN-10 countries, Thailand is the fourth-largest in terms of population and also the fourth-richest in terms of GDP per capita. In the Southeast Asia region, Thailand performs well across most World Bank international indicators[3] of well-being, including extreme poverty, lower middle-income class (LMIC) poverty, upper middle-income class (UMIC) poverty, and the multi-dimensional poverty measure (MPM). Along with other countries in the developing EAP region, Thailand has a successful story of poverty reduction over the past few decades. Aside from some stalls in the progress of poverty reduction during financial crises, outcomes in education, health, and poverty continued to improve. In 2017, the extreme poverty rate in Thailand was only 0.03 percent, and the number of extreme poor now measures in the thousands.

However, performance in inequality and shared prosperity can be improved. Growth of mean consumption of the bottom 40 percent of the population (the bottom 40) was negative in the period 2015–18. Growth of the mean was also more negative than the decline in average household consumption as a whole. Household consumption growth in the bottom 3 deciles was negative, but growth of the top 7 deciles was positive. This divergent growth between the bottom and top of the income distribution also fuels perceptions and the reality of inequality that is too wide.

2 See Annex A for a discussion of the differences between Thailand and international monitoring measurements. National and international poverty statistics serve different purposes and sometimes yield different trends. International statistics are used for cross-country comparisons and global monitoring, while national statistics are the best representation of poverty in a country and is most relevant for policy making.

3 See Annex C for definitions of the international poverty and equity indicators.

Figure O.1. **National official poverty rates, 1988–2018**
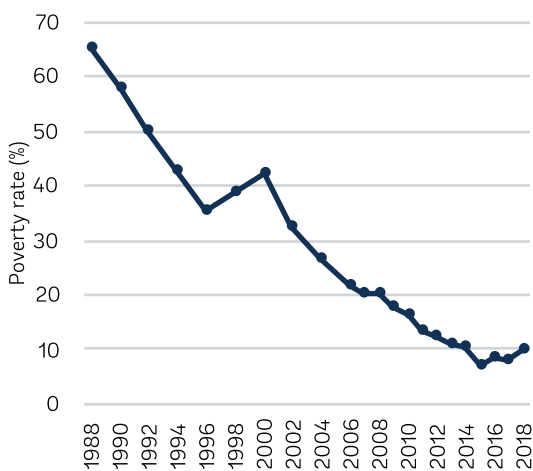
Source: NESDC.
Notes: National official poverty rates are based on household level poverty lines. Data updated November 14, 2019, by NESDC.

Figure O.2. **Official poverty rates increased in 2016 and 2018**
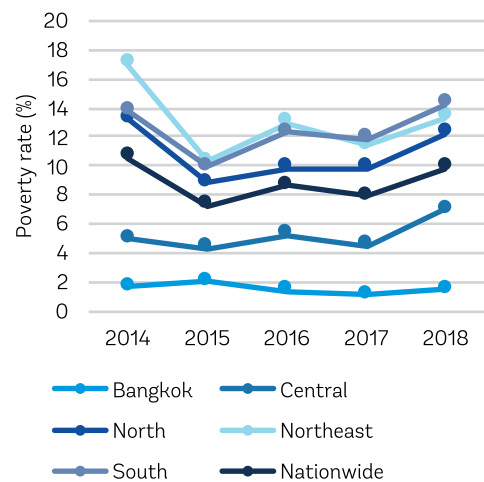
Source: NESDC.
Notes: Consumption-based poverty rates.

PART 2.
DRIVERS AND SOURCES OF THE RECENT CHANGES IN POVERTY

Chapter 3 explores the sources of the change in poverty. An income decomposition exercise helps answer why poverty increased, but can only be performed for years in which household income data are collected (2015 and 2017). During this period, the increase in poverty is small.

While it is preferred to examine changes over longer periods of time, we are limited to examining this specific period because income data are collected only every other year and a survey break between 2013/14 prevents comparisons over longer periods.

The increase in poverty and inequality in the period 2015–17 was associated with declines in labor market income, including net business and farm incomes. Increases in social assistance income buffered households from worse outcomes. These findings point toward household vulnerabilities to both environmental and economic shocks. The inability of households to guard against the unexpected is important to remedy in the short term.

Are the trends in the past few years a short-term obstacle, or early signs of deeper household vulnerabilities? Perceptions regarding living standards in Thailand worsened starting in 2016, coinciding with an increase in poverty. Starting in 2016, there was a downturn in perceptions among those surveyed in a Gallup World Poll. Perceptions worsened in some questions relating to respondents' life, financial well-being, standards of living, and income. For example, starting in 2016, many more respondents began indicating that they did not have enough money for food or shelter at least once in the past year (Figure O.3). Perceptions failed to improve in 2017 and 2018, indicating a prolonged worsening in living standards.

Figure O.3.   Household perceptions on well-being declined, starting in 2016
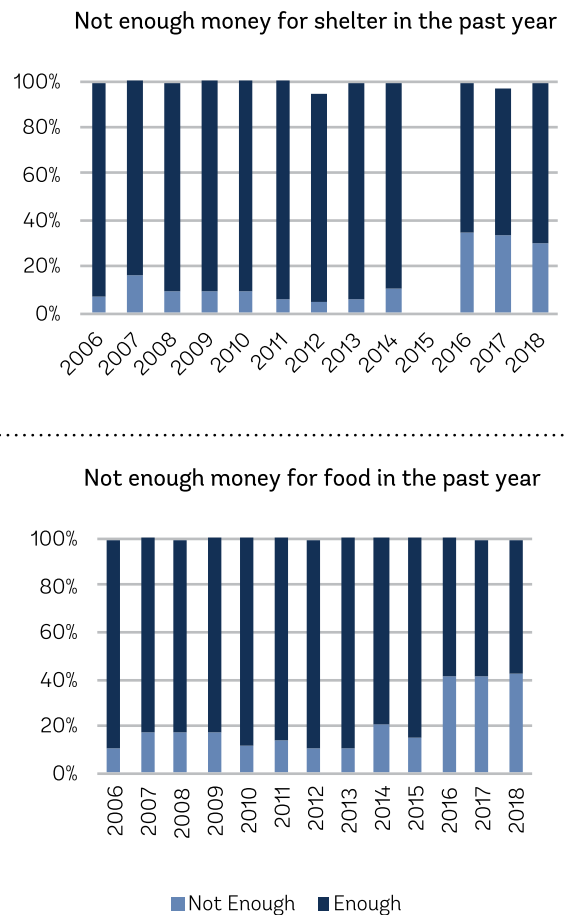
Not enough money for shelter in the past year

Not enough money for food in the past year

■ Not Enough   ■ Enough

Source: World Bank staff calculations using Gallup World Polls.
Notes: The Gallup World Poll surveyed 1,000 respondents over the age of 15 every year.

PART 3.
NARROWING INEQUALITY IN THE NEXT GENERATION

In addition to strategies to reduce short-term vulnerabilities in income generation and protecting households from shocks, longer-term measures must also be taken. Looking forward, narrowing the inequality experienced by children today is important to allow all children to reach their full potential, be productive in society, and help the economy grow.

Chapter 4 discusses the inequality of opportunities experienced by Thai children today. To narrow inequality in outcomes tomorrow, inequality in opportunities must be narrowed now. Inequality exists in early stages of life, meaning that Thai children do not have a level playing field. When access to opportunities differs, children are limited from reaching their full potential. These inequalities persist into later stages of life and adulthood, and can exacerbate inequality in outcomes measured by income and consumption. For example, over half of children aged 6-14 in Bangkok have joint access to all opportunities in the constructed bundle, compared with 10 percent of children in the Northeast region.

While basic opportunities are near universal, such as enrolment in primary school, more advanced opportunities are lacking, such as access to the Internet. This is consistent with the 2019 UN Human Development Report, which notes that globally there is convergence in basic capabilities within and across countries, but divergence in enhanced capabilities.

The Way Forward

Success in the eradication of extreme poverty is the first milestone in Thailand's progression toward an advanced economy. While this is no small feat, a more nuanced picture of

equity and a better understanding of vulnerability are needed to conduct a candid discussion of Thailand's way forward to build a prosperous society. The standards at which household well-being are measured also need to rise, as the cost-of-living, basic necessities in a UMIC country and aspirations increase.

Recent economic slowdowns reveal vulnerabilities, as the increase in poverty in 2018 was broader than that seen in 2016. In 2018, poverty increased in all regions and 61 out of 77 provinces. These trends show that even as an upper middle-income country, households can be vulnerable to falling back into poverty, especially during economic downturns, sectoral slowdowns, unpredictable environmental disasters, and external factors that cannot be controlled by domestic policymakers.

These trends show that Thailand not only needs to reinforce its safety nets, but also invest more in the future. Populations that are vulnerable must be better identified, and there needs to be swifter action, risk management, and alternative productive activities when the economy changes. However, these are all short-term solutions. In the longer term, Thailand will have to transform, as the Government is already planning under its Vision 2035 and Transformation Thailand policies. To do this, the next generation must reach its full potential. The next generation will be smaller due to aging and lower fertility rates, and every child will need to be given a fair shot, and be provided the health and education opportunities to reach his/her full potential. Reaching his/her full potential will not only help households break out of the generational poverty trap and support aging cohorts, but also boost Thailand's growth prospects.

To achieve this, researchers need to delve into the constraints to growth, and persistent poverty and inequity. A candid conversation needs to begin on why these constraints exist and what can be done to unleash and invest in Thailand's potential.

Figure O.4. **The number of opportunities with joint access among children aged 6-14, by region**
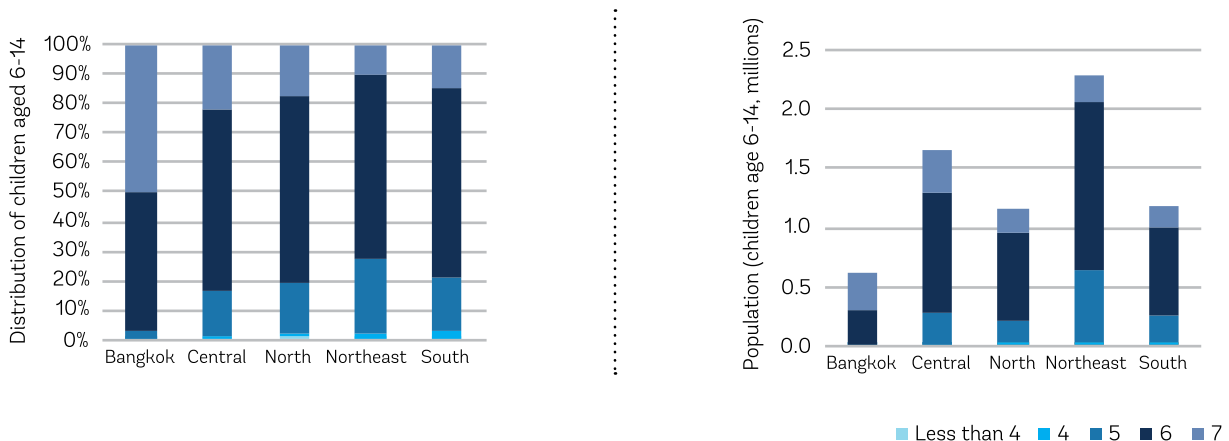
Source: NESDC.
Notes: Consumption-based poverty rates.

PART
01

RECENT
DEVELOPMENTS
IN POVERTY AND EQUITY

CHAPTER 01.

RECENT TRENDS IN OFFICIAL POVERTY [4]

This chapter examines poverty and equity trends in Thailand. Recent developments show that there are still vulnerabilities, and poverty and equity remain relevant policy issues for this upper middle-income country. Based on official estimates[5], poverty increased in both 2016 and 2018. The increase in 2018 was broader, affecting urban areas, and raising poverty in all regions and 61 out of 77 provinces. Households in agriculture, with low education, and in the 'stubborn regions' are more likely to be poor.

1.1. RECENT DEVELOPMENTS AND A CHANGING LANDSCAPE

Over the long run, official poverty in the Kingdom of Thailand fell from 65.2 percent in 1988 to 9.85 percent in 2018. Poverty over the past 30 years has been falling for the most part, except for periods during a financial crisis, and also during the past few years. Since the late 1980s, official poverty rates have increased on five. The first three poverty increased coincided with major financial crises (1998, 2000 and 2008) (Figure 1.5). The two most recent increases in poverty occurred in close time proximity, in 2016 and 2018.

The past few years signal a period of stagnation in poverty reduction: poverty was 10.53 percent in 2014 and 9.85 percent in 2018. While poverty in 2018 is generally still lower than in 2014, the period was marked by two increases in poverty. And some regions experienced a reversal; the South and Central regions are poorer in 2018 than in 2014. The increase in poverty in 2018 was larger and more widespread than in 2016.

Households have experienced challenging economic, agricultural, and labor conditions in the past few years. The recent increases in poverty experienced by some groups and regions reveal that households are still vulnerable to falling back into poverty. In 2016, the agriculture sector was in decline, in particular in the North region, as measured by gross regional production value. In the summer of 2018, a boating accident in Phuket led to a reduction in the number of tourists, especially those from China. International tourist arrivals to Thailand declined in 2018 and 2019, while a global economic slowdown and strong baht led to weaknesses in exports. During this period, GDP growth in Thailand was also the lowest among the large developing EAP economies (World Bank, 2019). The overall economic slowdown is also reflected in stagnant wage growth, especially in the agriculture sector.

While poverty trends are usually aligned with economic growth, in recent years poverty has increased notwithstanding positive growth. Over the period 2015–18, GDP per capita grew by 10.8

percent, but poverty increased by 36.6 percent. Based on official estimates, there were 1.8 million more poor in 2018 than in 2015.

Figure 1.5. **National official poverty rates, 1988–2018**
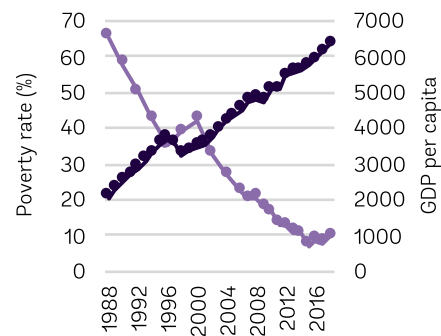
— Official Poverty Rate (%) — GDP per capita (constant 2010US)

Source: NESDC, WDI.
Notes: National official poverty rates are based on household level poverty lines. Data updated November 14, 2019, by NESDC.

Figure 1.6. **Wage growth in the agriculture sector has been stagnant**
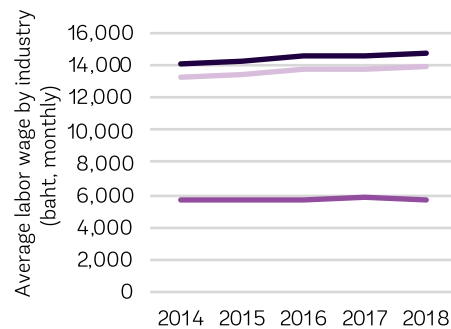
— All sectors — Agriculture — Non-agricultural sector

Source: Department of Employment Ministry of Labor, Bank of Thailand.

Growth in household consumption and income has begun to stagnate and decline in the past few years. Growth rates in the period 2014–18 were much lower than in 2011–13. Starting in 2015, growth became negative in some regions. Bangkok and the Central region were able to preserve the highest rates of growth during this downturn, though growth was still much lower than during the 2011–13 period.

Policies were established by the Government to help low-income and vulnerable households. In 2017, the Government launched a cash transfer program, also referred to as the welfare card program. The criteria for enrolment into the program were based on a selection of several characteristics.. Welfare card holders receive about B 200 to B 300 per month. Originally, this was supposed to be used only at certain stores. In 2018/19, card holders were allowed to withdraw the money as cash.

4 This section summarizes poverty and inequality trends which are consistent with official poverty estimates. Due to the lack of access to household-level poverty lines which are needed to replicate official poverty rates, poverty profiles by household characteristics are discussed in later sections. 5 Official estimates refer to poverty and inequality indicators calculated and published by the Office of the National Economic and Social Development Council (NESDC).

Household data are limited to 2018, though challenges continued into 2019. In October 2019, GDP growth was 2.7 percent, the lowest among the larger EAP economies, and well below the EAP regional growth rate of 5.8 (World Bank, 2019). Post-elections in 2019, the Government considered stimulus packages and other social measures. Government policies under consideration include increasing elderly care, expanding enrolment in the welfare card, subsidies and loans for farmers, and lowering public transportation costs. During the slowdown in 2019, payments to the welfare card were also increased for some months as part of the stimulus program. A severe drought devastated farmland in the Central Basin region used to mainly harvest rice. Coupled with a strong baht and poor external trade conditions, rice farmers endured extensive estimated losses.

Box 1.1. Official poverty measurement

Global and national poverty measurements serve different purposes and should be treated separately. National official poverty rates are the best representations of poverty for a country's own policy-making. International indicators are used primarily to monitor progress on global targets such as the SDGs, and to facilitate cross-country comparisons.

Data	Welfare Aggregate	Poverty Lines
The Socio-Economic Survey (SES) of Thailand is an essential survey administered by the Thailand National Statistics Office (NSO). It is the official data source of national poverty and inequality estimates, and is also used by the World Bank and international agencies for SDG monitoring. The NSO produces publications annually including analysis of patterns in consumption and income. The NSO also produces small-area poverty estimates using the PovMap software.[6] The Social Database and Indicator Development Office in the NESDC uses the SES to produce poverty assessments annually that describe poverty and inequality trends, and provide policy recommendations. Together, these two organizations provide comprehensive and timely assessments of data trends and policies to improve well-being in Thailand.	The official welfare aggregate used for poverty monitoring is household consumption per capita, which includes cash and in-kind food, non-food, and housing components. Gini coefficients are also produced using both household income and consumption per capita.	The first national poverty line in Thailand was developed in 1979 with assistance from the World Bank (Meesook, 1979). The current poverty lines were adapted in 2011 following methodological changes implemented by Thailand Development Research Institute (TDRI) and the UNDP. Poverty lines are household specific, meaning that they vary by household composition and geography. Price and cost-of-living differences are embedded in the household-specific poverty lines. Poverty lines reflect the cost of obtaining minimum basic needs, and it makes sense that average poverty lines in Bangkok are highest (Figure 1.7).

6 These estimates were published in a tabular format with estimates for over 7,000 tambons. The World Bank team recently moved the information into a more digestible map. This map can be viewed in Note #1 of the Thematic Note Series.

Figure 1.7. Average national poverty lines, by region
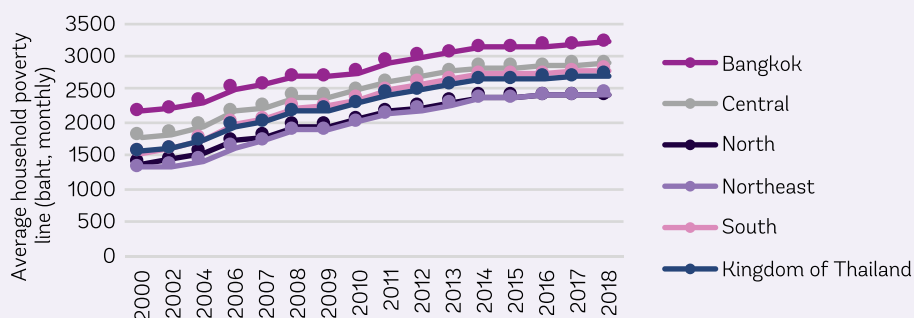
Source: NESDC.
Notes: Average of household-level poverty lines by region and year.

See Annex A for a full description of national and international poverty measurement.

1.2 GEOGRAPHIC TRENDS IN POVERTY

The poverty increases in 2016 and 2018 were not isolated but occurred in many geographic areas across the country. In 2016, official poverty increased in all regions except for Bangkok and in 52 out of 77 provinces. However, the increase in poverty in 2018 was broader, occurring in all five regions, and 61 out of 77 provinces. In the South and Central regions, the increase in poverty was such that poverty in 2018 was higher than in 2014.

The ranking of regions by poverty status has changed. In 2014, poverty rates in the South surpassed the North region, and in 2017, the poverty rate in the South became higher than in the Northeast. Bangkok and the Central region have consistently remained the regions with the lowest poverty rates. While poor households are likely to be in agriculture, the profile of the poor is not one-dimensional. Tackling poverty in Thailand will also mean focusing on ethnic minorities, lagging regions in mountainous and border areas, and those areas suffering from conflict and fragility. Four out of five of the poorest provinces in 2018 are located on a border (Mae Hong Son, Pattani, Narathiwat, and Tak) (Figure 1.11).

Figure 1.8. **Official poverty rates by region (2014–18)**
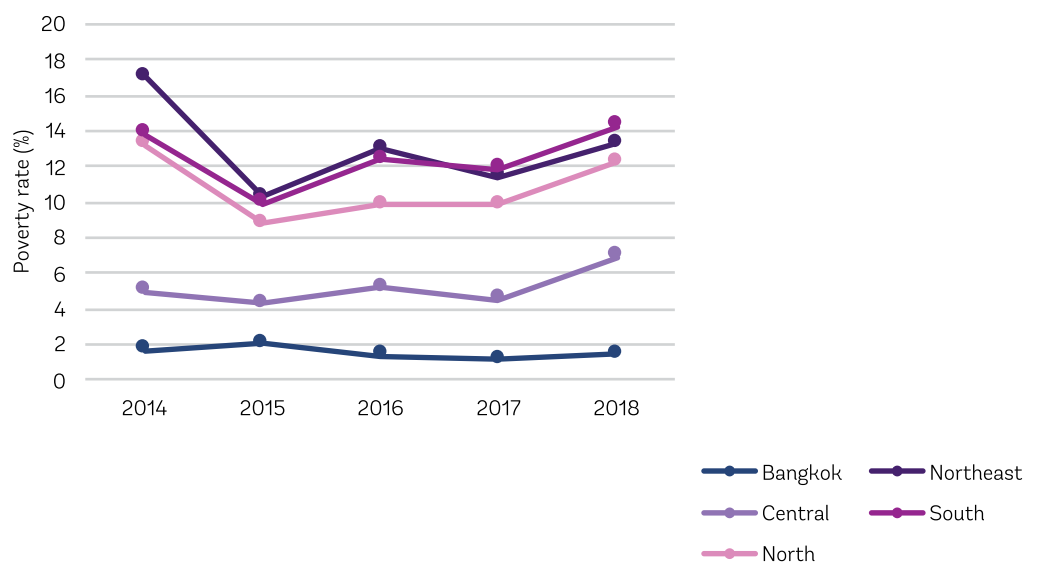
Source: NESDC.
Notes: Consumption-based poverty rates. A survey break occurred between 2013 and 2014 surveys, hence only the past five years are shown.

Nationally, there were 6.7 million poor people in Thailand in 2018. The number of poor in 2018 is much lower than in previous decades, but was higher than in any year in the period 2015–17 (Figure 1.9). In 2018, there was almost 2.5 million poor in the Northeast region. The number of poor in the Central region increased by almost half a million people, as its regional poverty rate increased from 4.5 percent in 2017 to 6.9 percent in 2018.

Figure 1.9. **The number of poor, 2000–18**
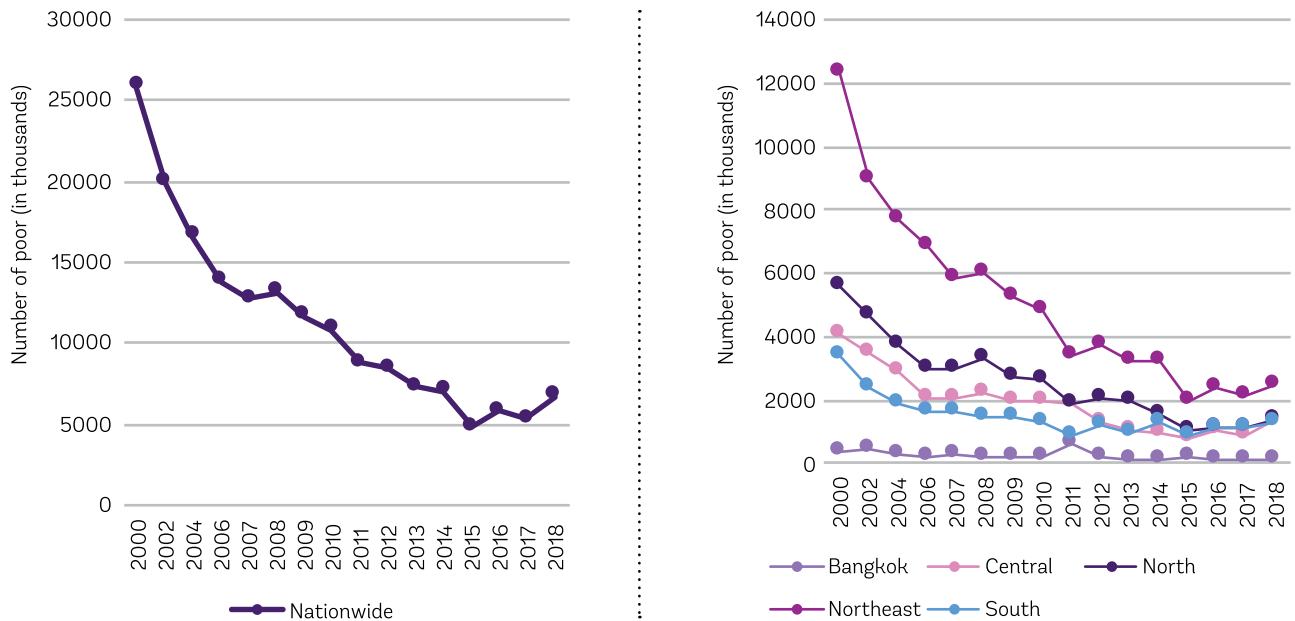
Source: NESDC, Social indicators Table 2.3.
Notes: Consumption-based poverty rates. In 2012, Bueng Kan was added as a province in the Northeast, which explains some increase in the number of poor in the NE that year.

Across regions in Thailand, there have been large variations in the success of poverty reduction over the medium term. By region, Bangkok has enjoyed the fastest pace of poverty reduction. In the period 1988–2013, the annualized change in poverty reduction in Bangkok was about 12 percent per year; its official poverty rate dropped from 24.7 percent in 1988 to just 1.1 percent in 2013. The urban and rural areas of the Central region had the second-fastest pace of poverty reduction, at 9.9 and 8.8 percent, respectively, over the period 1988–2013.

However, in recent years, the pace of poverty reduction has slowed down and even reversed in some regions. In the period 2014–18, poverty increased in the urban and rural areas of the Central region, as well as the Southern urban regions. The fastest pace of poverty reduction was seen in the rural regions of the Northeast region. The slowdown of tourism and challenges related to conflict could be factors related to the increase in poverty in the urban South. The Central region includes farmland susceptible to droughts, but also manufacturing that may have suffered from slowing export demand.

An increase in poverty was seen across most provinces. Compared with provincial poverty rates in 2014, over half of the provinces in the Central, North, and South regions had a higher poverty rate in 2018 (Table 1.1).

There is heterogeneity across provinces in the same region. For example, provincial poverty rates in the North range from 49.13 percent in Mae Hong Son to 3.45 percent in Phichit. Mae Hong Son and Tak provinces in the Northern region are also among the five poorest in the Kingdom (Figure 1.12). The Central region spans from the west to the eastern borders, and includes provinces adjacent to Bangkok that are high growth, as well as agricultural reliant provinces in the Central basin that are prone to droughts or floods. The South region includes Phuket and wealthy tourist hotspots, but also some of the poorest provinces in the Kingdom, which are also conflict-affected.

Figure 1.10. **The pace of poverty reduction has slowed down**
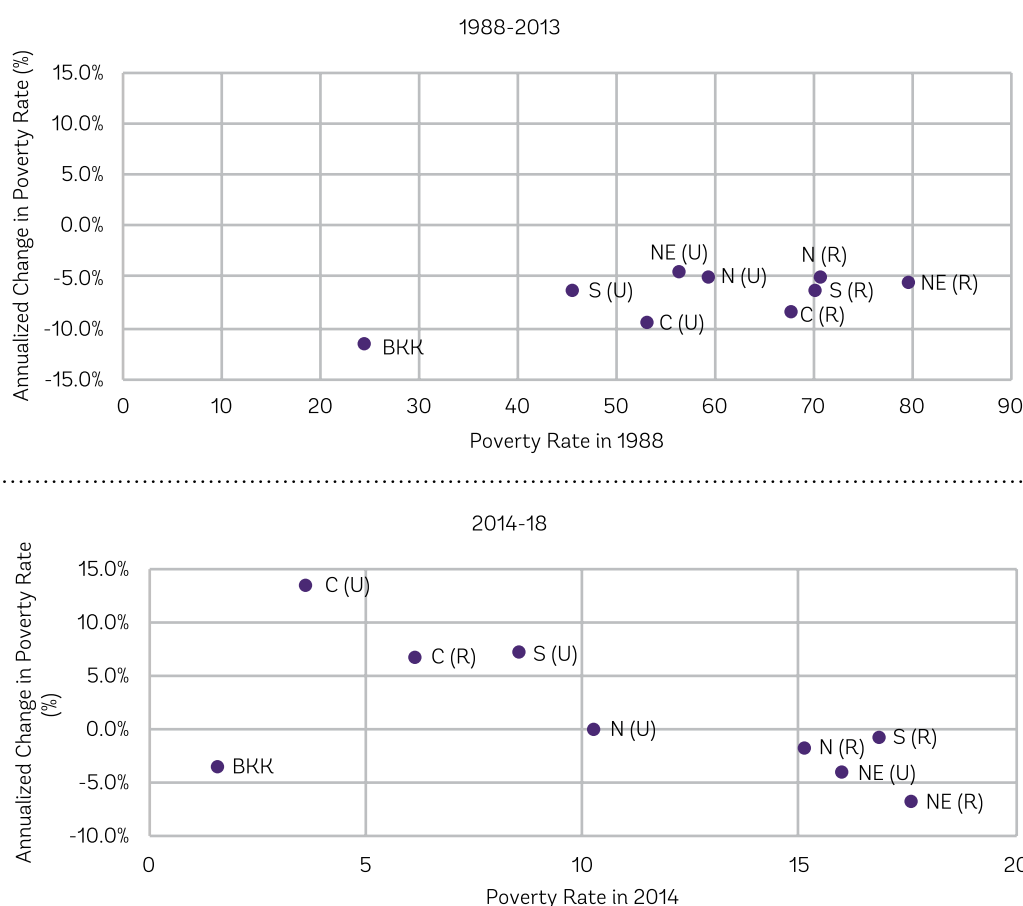
Source: World Bank calculations using official regional poverty estimates from NESDC.
Notes: NE=Northeast region, N=North region, C=Central region, BKK=Bangkok, (U)=Municipal city, (R)=non-municipal area

Table 1.1. **Change in poverty rates from 2014–18, number of provinces**

	Bangkok	Central	North	Northeast	South
Poverty decreased (2014–18)	1	6	7	14	2
Poverty increased (2014–18)		19	10	6	12

Source: World Bank staff calculations using data from NESDC.

Progress in poverty reduction across provinces has varied over the medium term. All provinces with the exception of Phuket have experienced poverty reduction over the longer period from 2000 to 2018. In 2000, only seven out of 76 provinces had poverty rates less than 10 percent. In 2018, this was the case in 36 out of 77 provinces.[7] However, in more remote and mountainous regions, poverty reduction has been more challenging. For example, poverty reduction has been slower in Mae Hong Son on the northwest border. Poverty rates there were 72.8 percent in 2000 and 49.13 percent in 2018. Globally, highlands are commonly some of the poorest areas. This has been found to be the case in World Bank small-area poverty analysis in Vietnam, Turkey, and Armenia.

7 Bueng Kan was approved as a province in 2011, after which there was 77 provinces. Administratively, there are 77 provinces, and Bangkok and Pattaya are administrative districts. In the household survey (SES), there are 76 provinces: Pattaya is merged with its surrounding areas.

Welfare of households in Phuket is likely sensitive to changes in tourism. Phuket experienced some anomalies. When considering the period 2000–17, Phuket had one of the highest paces of poverty reduction, but in 2018 it was the only province that had a higher poverty rate in 2018 than in 2000. The sharp reversal of the provincial poverty trends in Phuket suggests that households in this province are sensitive to changes in the tourism industry. In July 2018, a boating accident near Phuket led to a reduction in tourists, particularly the number of Chinese tourists.

The number of poor and the poverty rate are not necessarily highest in the same provinces. Depending on the population of the province, a high poverty rate province can have a low number of poor. For example, Mae Hong Son had the highest poverty rate in 2018 and 97,000 poor, compared with Nakhon Ratchasima with a poverty rate that was about one-third, but home to 375,200 poor. Pattani, Narathiwat, and Kalasin are high-population and high-poverty-rate provinces.

Figure 1.11. **Trends in provincial poverty rates**

The number of poor, 2018

Provincial poverty rate, 2018

Change in Provincial poverty rate, 2014-18

Number of poor (thousands)

1.5   375.2

Poverty rate (%)

0.28   49.13

Change (percentage point)

-20.00   20.00

Source: World Bank staff calculations using official provincial poverty estimates from NESDC.

Figure 1.12. A comparison of provincial poverty rates over the medium term

Region	Province	Poverty Rate (%) 2018	Number of Poor (in thousands) 2018
Bangkok	Bangkok	1.41	123.6
Central	Chai Nat	27.72	87.4
	Kanchanaburi	15.14	121.0
	Ang Thong	23.40	60.8
	Suphan Buri	17.30	149.5
	Sa Kaeo	26.68	168.8
	Lop Buri	15.76	122.5
	Trat	14.83	41.2
	Ratchaburi	11.39	91.5
	Nakhon Nayok	11.31	31.9
	Chanthaburi	5.43	29.9
	Saraburi	7.07	50.5
	Sing Buri	18.76	38.6
	Prachin Buri	4.30	26.6
	Prachuap Khiri Khan	7.47	34.6
	Chachoengsao	2.84	23.0
	Samut Sakhon	5.31	52.0
	Ayutthaya	9.96	86.2
	Phetchaburi	6.86	32.8
	Samut Songkhram	7.25	13.8
	Samut Prakan	0.33	7.0
	Chon Buri	0.34	5.7
	Nakhon Pathom	2.23	24.6
	Rayong	4.37	39.7
	Nonthaburi	0.75	11.8
	Pathum Thani	1.56	23.6
North	Mae Hong Son	49.13	97.0
	Tak	28.97	145.0
	Nan	17.44	76.4
	Chiang Rai	11.37	129.5
	Phayao	11.56	47.2
	Sukhothai	16.12	99.0
	Phrae	14.03	59.2
	Uthai Thani	9.30	27.1
	Uttaradit	17.43	75.3
	Lampang	18.11	132.7
	Nakhon Sawan	11.01	106.9
	Phitsanulok	8.87	78.9
	Lamphun	4.67	18.9
	Chiang Mai	8.84	149.9
	Kamphaeng Phet	7.03	54.1
	Phetchabun	8.05	73.2
	Phichit	3.45	18.6
Northeast	Kalasin	31.26	251.5
	Buri Ram	21.01	261.1
	Nakhon Phanom	17.52	98.4
	Mukdahan	11.79	40.5
	Sakon Nakhon	11.81	107.5
	Amnat Charoen	23.55	64.8
	Nakhon Ratchasima	15.08	375.2
	Maha Sarakham	11.95	98.4
	Nong Bua Lam Phu	18.91	88.7
	Yasothon	12.68	60.8
	Surin	17.51	193.5
	Si Sa Ket	21.91	225.5
	Ubon Ratchathani	8.31	141.4
	Khon Kaen	6.14	106.4
	Loei	0.28	1.5
	Chaiyaphum	8.55	81.4
	Udon Thani	10.45	130.5
	Roi Et	7.63	81.3
	Nong Khai	4.11	18.2
	Bueng Kan	11.94	41.4
South	Narathiwat	30.10	209.0
	Pattani	39.27	248.4
	Yala	23.28	104.6
	Phatthalung	24.93	128.5
	Ranong	22.76	58.5
	Nakhon Si Thammarat	12.01	186.0
	Trang	12.55	79.4
	Satun	12.56	35.6
	Songkhla	8.29	128.9
	Chumphon	5.27	26.0
	Krabi	8.49	31.9
	Surat Thani	4.82	51.0
	Phangnga	5.96	16.2
	Phuket	4.26	22.9

Poverty rate (%) — Number of Poor (in thousands)

Legend: Poverty Rate 2014 — Poverty Rate 2018 — Number of Poor 2014 — Number of Poor 2018

Source: NESDC. Notes: Consumption-based poverty rates.

While regional- and provincial-level estimates of poverty are informative, estimates at the administrative tambon-level are the most revealing and can provide the most information for policy-making and targeting. The NSO annually estimates small-area poverty rates using the World Bank developed Povmap software (Map 1.1). Small-area poverty estimates illustrate poverty rates for 7,424 tambons and are useful to identify pockets of high poverty. Most of the country has low poverty rates, as indicated by the dark blue color in Map 1.1. However, the map reveals large areas of high poverty rates in the Northeast and Central regions that border Myanmar, the northern border with Lao PDR, and other smaller scattered pockets of poverty. The Pattani area in the South is another pocket of high poverty. These trends are broadly in line with provincial estimates of poverty. However, even within the provincial level, there is heterogeneity in living standards and well-being, and poverty maps at these levels are most useful for policy to improve targeting.

Map 1.1. Tambon-level small area poverty estimates, 2015

Poverty rate, by tambon

0.00   25.00
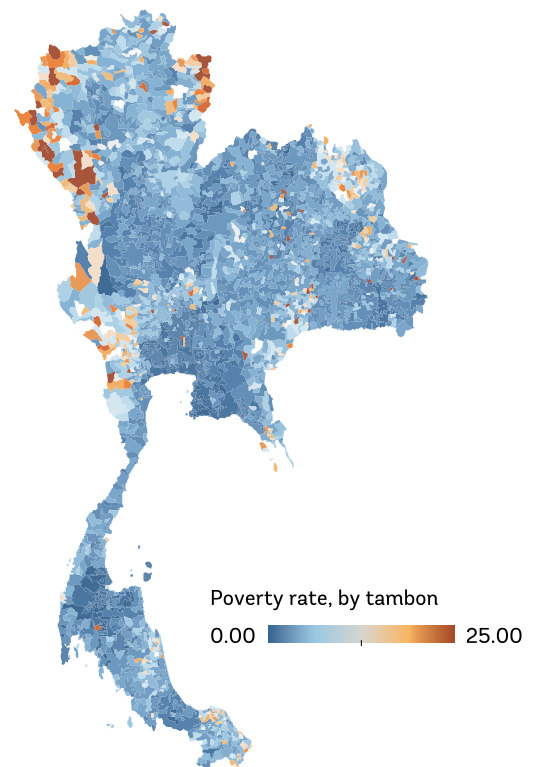
Source: Estimates by NSO, visualization by WBG staff.
Notes: Small-area estimates calculated by NSO using Thailand official poverty lines. Bueng Kan is not included in the NSO small area poverty estimates since it was not approved as a province until 2011, after the 2010 Census. In the left panel, poverty rates are grouped, 25 refers to 25+.

1.3 TRENDS ACROSS THE DISTRIBUTION

Inequality, as measured by the Gini coefficient, has been declining over the long term. The official Gini coefficient based on household consumption per capita was 0.362 in 2018, compared with 0.439 in 1988 (Figure 1.13). In the period 2017–18, household consumption contracted on average. Across the distribution, the top quintile contracted the most. Average consumption in the top quintile dropped 0.43 percent compared with 0.03 percent in the bottom quintile (Figure 1.14). The official Gini coefficient only marginally changed from 0.364 in 2017 to 0.362 in 2018.

Figure 1.13. Gini coefficient (consumption), trend over time
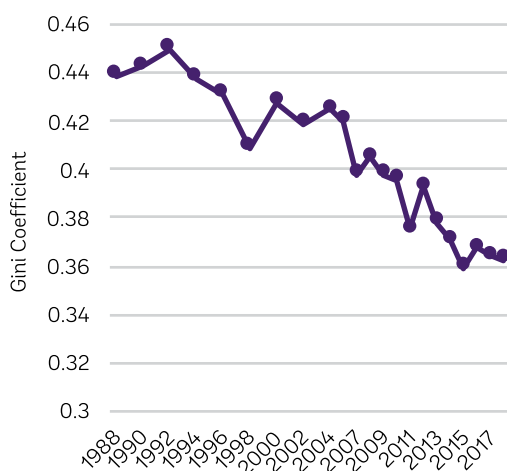
Source: NESDC.

Figure 1.14. Growth in consumption, by quintile

Q1 (lowest 20%)   Q2   Q3   Q4   Q5 (top 20%)
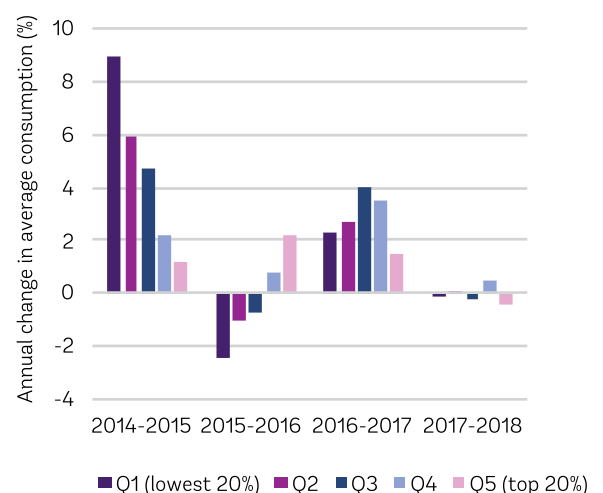
Source: NESDC.

Box 1.2. **Measuring inequality from household surveys**

The official data source for inequality measurement is the Thailand Socio-Economic Survey (SES). The survey is conducted annually by the National Statistics Office of Thailand (NSO), income is collected every other year, and consumption is collected annually. The Office of the National Economic and Social Development Council (NESDC) calculates the official national Gini coefficients nationally, by region, and also by municipal and non-municipal areas. Gini coefficients based on income and consumption are both published based on data availability. Since the Gini coefficient only utilizes the welfare aggregate, survey weights, it is more easily replicable.

The Gini coefficient is a measure of dispersion and inequality across the entire distribution. It represents how equitably the economic pie, so to say, is being shared. The Gini coefficient ranges from 0 to 1. If all individuals hold equal shares of total income, then there is no inequality and the Gini coefficient is zero. If one person holds 100 percent of total income, then the Gini is 1. Other indicators can also be used to measure gaps in income between the poorest and richest in society. As part of the 20-year national plan, the Government of Thailand aims to lower the ratio of income between the top and bottom 10 percent to 15, as well as to raise average income per capita. However, total household income in an economy can be difficult to measure.

The aggregate amount of income captured in the SES, and many other household surveys for that matter, is often lower than reality, partly because of top income earners being under represented, but also because income information is sensitive and households may underreport their true income. Estimates of inequality are usually calculated using household surveys but can be much higher when utilizing a combination of household, financial, and tax data to include the richest in society. The share of the household consumption and income held by the top 1 percent in 2017 is 3.0 and 6.8 percent, respectively, based on the household surveys. Based on the World Inequality Report, the share is 20.2 percent.

Table 1.B.2. **Measures of inequality vary by data source and inequality concept**

Year of data	Welfare type	Gini coefficient	Share of consumption/ income held by the top 1%	Welfare type
2015	Household per capita consumption	0.360	2.8%	NESDC, World Bank calculations using SES (household surveys)
2016		0.367	3.2%	
2017		0.364	3.0%	
2018		0.362	5.1%	
2015	Household per capita income	0.445	9.97%	
2017		0.45	11.8%	
2016	Pre-tax national income		20.2%	World Inequality Database: household surveys, tax data, national accounts

Source: World Bank staff calculations, NESDC, WIR.
Notes: Most recent published numbers.

Globally there is a growing interest in the incomes of top earners, which are usually outside the coverage of household surveys. A common challenge with household survey data is the low representation of wealthy households. While the lack of their representation does not have much impact on poverty measurement, it can lead to a non-trivial impact on inequality estimates. Results from the World Inequality Report (WIR) show a pessimistic picture of widening inequality over the course of the past few decades, and that the rich in each country are holding a larger share of the economic pie. On the other hand, the World Bank's 2016 Poverty and Shared Prosperity Report – Taking on Inequality shows a picture of declining global inequality from the 1990s, and that country-level inequality has been declining in more countries than where it was rising (World Bank, 2016). The mismatch in these two views are related to different sources of data, as well as differences in the focus on the top of the distribution. Top income earners are often underreported in household surveys, the primary source of World Bank inequality estimates. To understand the incomes of the rich, studies such as the WIR must utilize tax records to supplement household survey data, and scales income to be closer to national accounts. The country coverage of the WIR is smaller, since tax records are naturally more difficult to obtain, include mainly high and upper middle-income countries, and the developing world are mostly left out. Some researchers have found that inclusion of tax data to more accurately capture the richest in Thailand does result in higher Gini coefficients (Vanitcharearnthum, 2017; Jenmana, 2018).

How a society feels about inequality is important, and sometimes more so than objective measures. Inequality is also subjective, because of the nature of relative comparison of oneself to the rest of society. These perceptions are not limited to inequality in income, but also include standards of living, access and quality of public services, and governance. Perceptions that life is unfair or that upward mobility is difficult can lead to strains in the social fabric of society. Even when objective measures of inequality are low, perceptions of high inequality can have significant consequences. Subjective inequality is important in Asia, a region where the Gini coefficient is lower than higher inequality regions such as Latin America, but where at the same time many people feel that income gaps are too wide (World Bank, 2018a).

In Thailand, perceptions regarding inequality are discouraging. Responses related to equity and standards of living by Pew and Gallup polling reveal that Thais believe inequality is a major problem and they are not fully optimistic about their future. Ninety percent of Thais in 2014 felt that the income gap between the rich and the poor was a moderate or very big problem (Pew Global Surveys). Moreover, only 39 percent of Thais in 2018 felt their standard of living was getting better, the lowest when compared to other East Asian countries surveyed during a similar period (Figure 1.15). Those living in the lowest quintile are also the most uncertain about their future. From 2016–18, about one-third of respondents in the lowest quintile were unable to answer what their expectations of life would be like in five years' time.

Figure 1.15. **Standard of living getting better or worse, Thailand and neighbors, 2006–18**
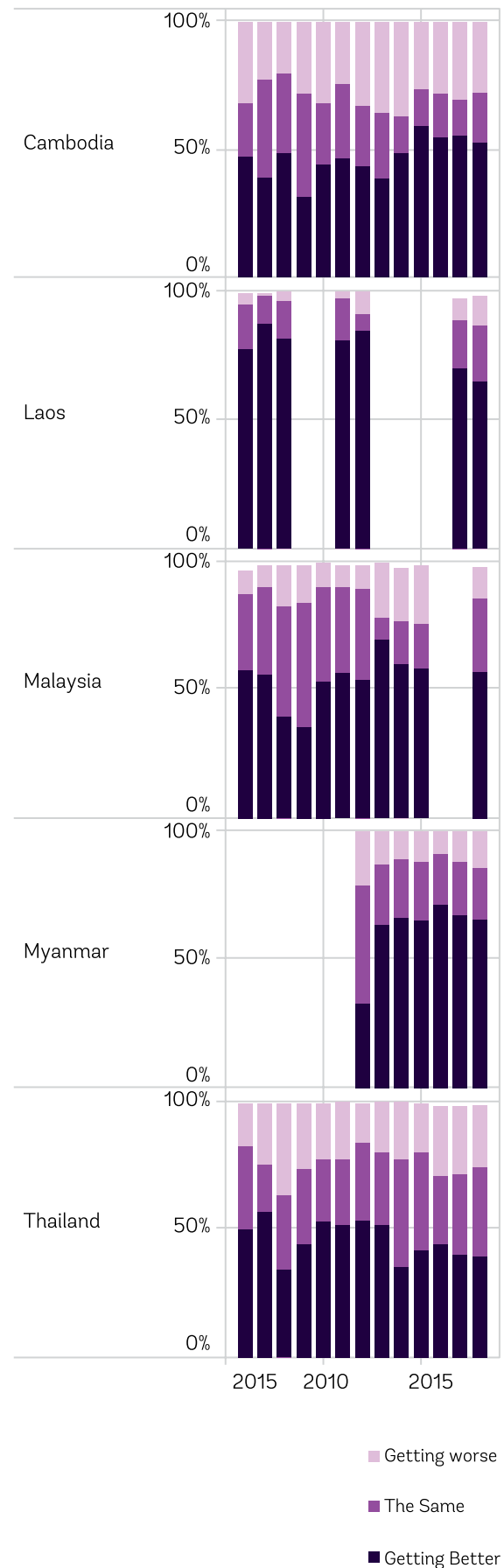
Source: Gallup World Poll.

Growth incidence curves show that household income and consumption began to decline from 2015 onward. How the level of income or consumption is changing along the entire distribution, or the changing "size of the economic pie" is illustrated by growth incidence curves (GICs) (Figure 1.16). GICs can provide insights as to whether all boats are being lifted, and comparisons between growth of the bottom vs growth of the top. In the period 2011–13, both household income growth was high across most of the country; income growth in the Central region was the highest. However, from 2015–17, income growth was much lower. In the period 2015–18, growth in household consumption was also negative in the majority of regions.

Figure 1.16. **Growth incidence curves, by area and period**

Household consumption per capita (2015–18)

Household income per capita (2011–13, and 2015–17)
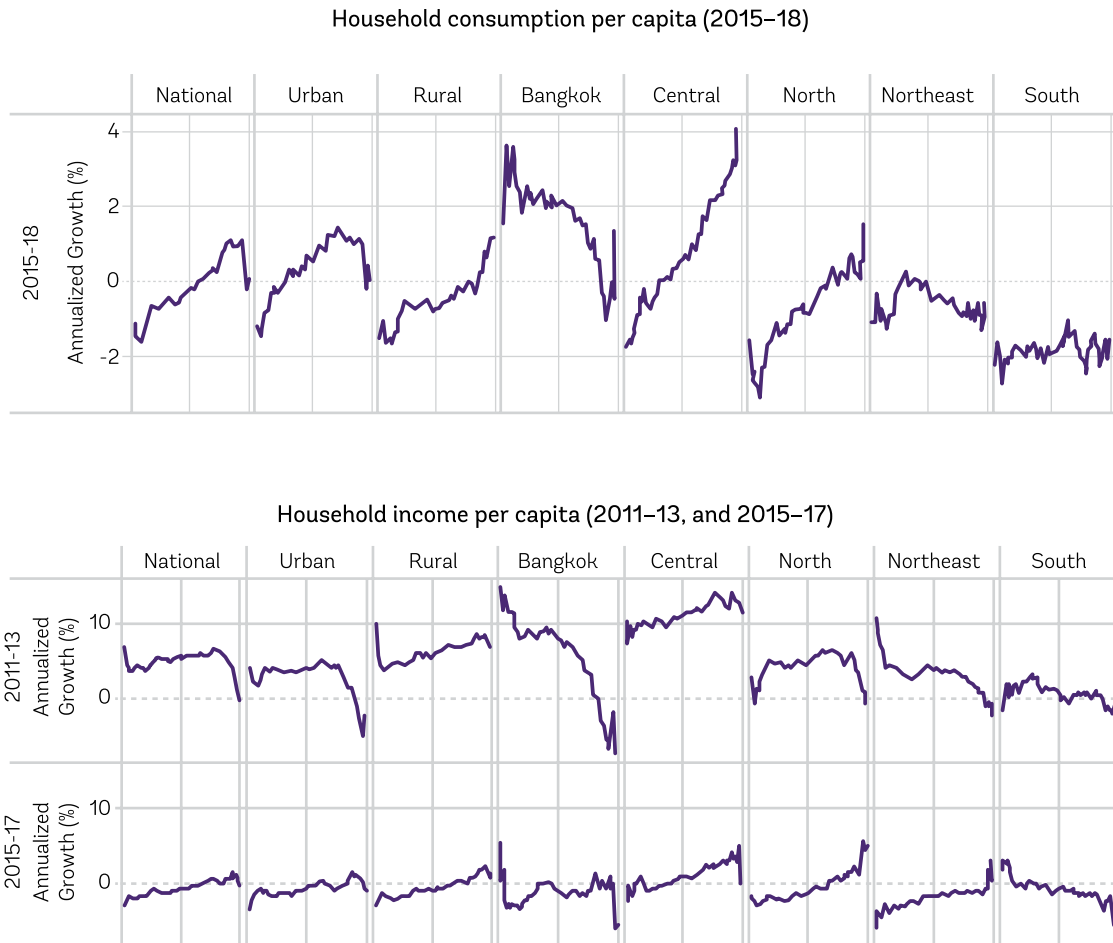
Source: World Bank staff calculations using the SES.
Notes: Each bar represents a decile. A survey break between 2013 and 2014 means that growth cannot be calculated before or after the break. Income is available on in odd survey years. Growth rates are based on household current consumption and income per capita. The lowest and highest percentiles are not shown.

Growth across regions is uneven. Bangkok and Central regions are typically the highest growth regions, and the difference in growth can be quite large. In the period 2011–13, annual growth at the mean was about 3.8 percent. During this same period, Bangkok experienced average annual growth rates well above 10 percent per year, while the North, Northeast, and South regions experienced growth below 5 percent. The period of 2015–17 was a much slower growth period throughout the entire Kingdom. While consumption growth was still present, income growth was almost erased. The fall in agricultural prices and negative impacts on farmers was expected, though broad declines in household income was seen in other regions as well.

Reversals in inclusive growth occurred after 2015. During the period 2011–13, the bottom or poorest segments of the population in the Northeast grew the most. But in the period 2015–17, these segments saw their household incomes shrink. Growth among the poorer segments in Bangkok also dropped considerably. Household consumption growth in the period 2015–18 was more negative for those at the lower deciles than at the top in the Central and North regions. On average nationally, household consumption growth at the bottom contracted more than at the top.

Nationally, the bottom 40 percent of the population (bottom 40) grew more slowly than the average during the period 2015–18. While growth was high in the period 2014–15, the bottom 40 began to shrink over the period 2015–18 (Figure 1.17). In the later period, average consumption of the bottom 40 shrank among most areas except for Bangkok.

Figure 1.17. **In recent years, the bottom 40 has been growing more slowly than the mean**
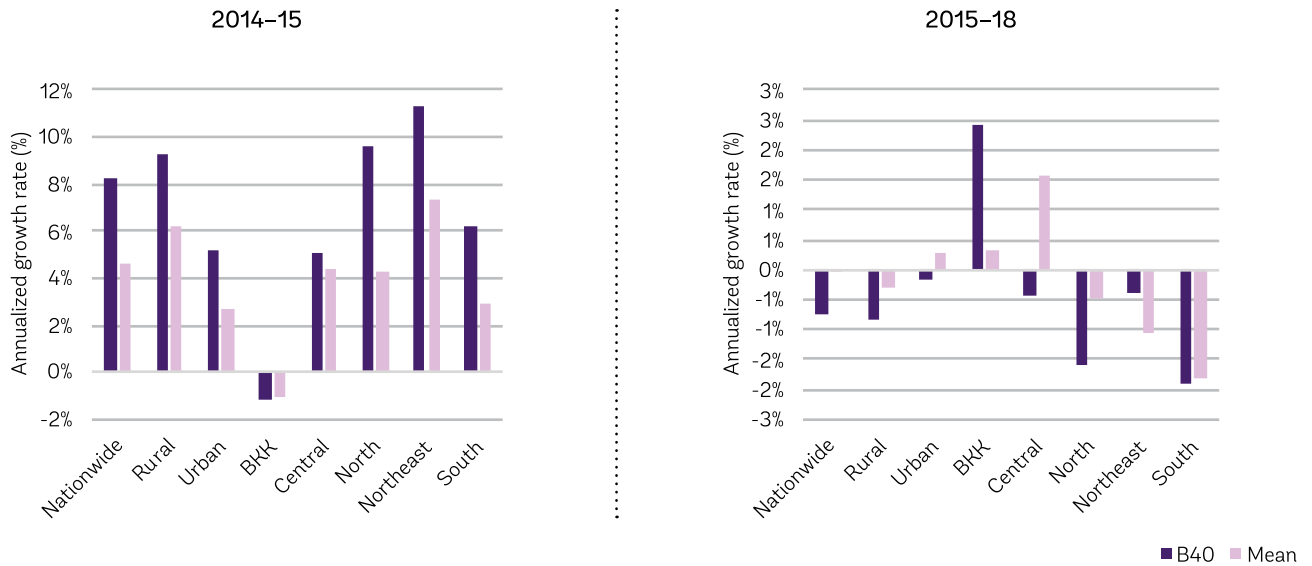
Source: World Bank staff calculations using the SES.
Notes: Household consumption per capita.

1.4 CONCLUSION

This section examined recent trends in poverty and inequality using official poverty statistics and the Thailand Socio-Economic Survey (SES). Starting in 2015, household consumption and income growth stagnated and declined in many regions. In 2016, poverty and inequality increased. In 2018, poverty increased once again, and was more widespread and affected more provinces. In some regions, urban areas were more negatively affected. While the increase in poverty in 2016 was strongly linked to a deterioration in agriculture that was due to environmental factors, the increase of poverty in 2018 was linked to more broad-based slowdowns in economic growth.

CHAPTER 02.
THAILAND VS ASEAN PEERS

This chapter sets the context of Thailand's performance by benchmarking it in terms of poverty and equity relative to its peers. A comparison between Thailand and ASEAN economies is conducted using the suite of World Bank poverty and equity monitoring indicators. Thailand performs better than its ASEAN peers on many international indicators of well-being. However, issues in equity exist. Across the distribution, the bottom is not growing, and in the most recent period of 2015–17, consumption and income growth in the bottom 40 percent were negative. The poverty rate increased twice in a relatively short period. This frequent increase in poverty is not observed in other ASEAN countries.

2.1 THE ASEAN ECONOMIES

Thailand is one of ten member countries of the Association of Southeast Asian Nations (ASEAN), and served as its 2019 chair. This note benchmarks Thailand with its ASEAN peers across various World Bank global monitoring indicators, including the Twin Goals, inequality, and new indicators introduced in the 2018 Poverty and Shared Prosperity flagship report (World Bank, 2018b). The new indicators include higher poverty lines and a multidimensional poverty measure.[8]

Figure 2.18. **ASEAN countries**
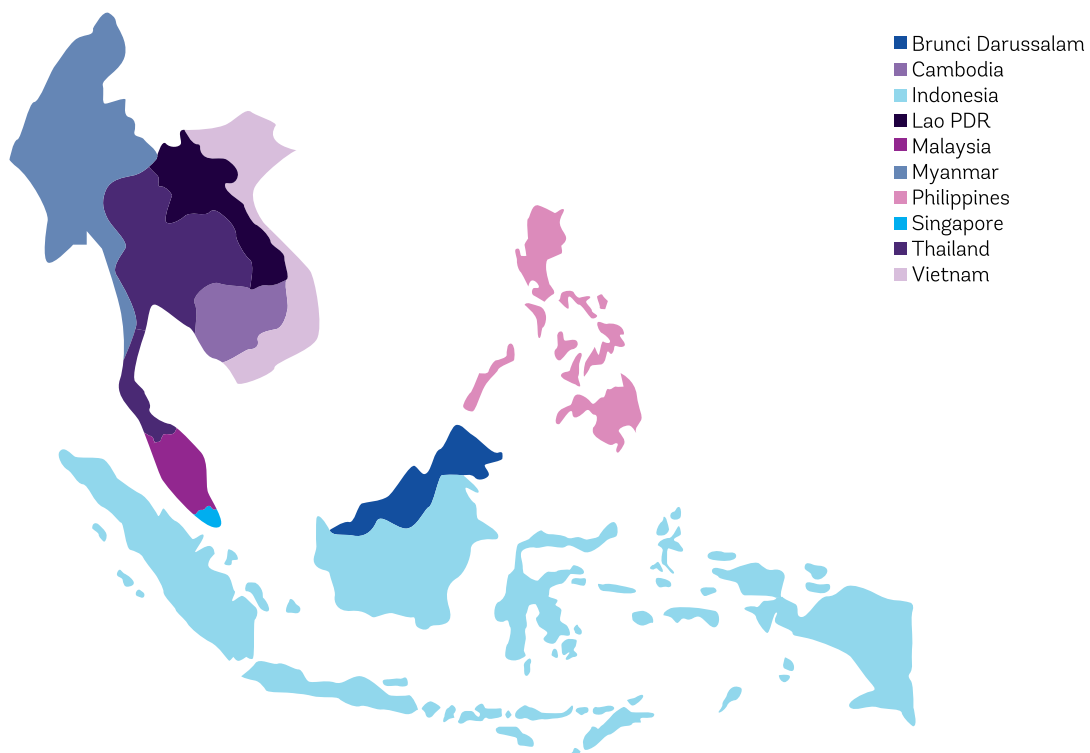
The ASEAN group has ten member countries: Indonesia, Thailand, Malaysia, Singapore, the Philippines, Vietnam, Cambodia, Myanmar, Brunei, and Lao PDR. The ASEAN group is extremely heterogenous in population size and wealth (Figure 2.19). Brunei and Cambodia have the highest and lowest GDP per capita, respectively. Brunei's GDP per capita is almost 30 times greater than Cambodia's. However, Brunei is the only ASEAN country in which GDP per capita in 2017 was lower than in 2000. Indonesia is the largest country by population and has also experienced the fastest population growth. The second-most-populous country, the Philippines, is less than half its size.

For global poverty monitoring, seven out of ten ASEAN countries are monitored by the World Bank. Since micro data for Singapore and Brunei are unavailable, and Cambodia's data are currently censored, these three countries are excluded from the ASEAN group analysis. In this note, ASEAN-7 will refer to the remaining seven countries, and ASEAN-6 refers to these countries excluding Thailand.

8 World Bank global monitoring indicators are described in Annex C.

Figure 2.19. **Population and GDP per capita, by country, 2000–17**
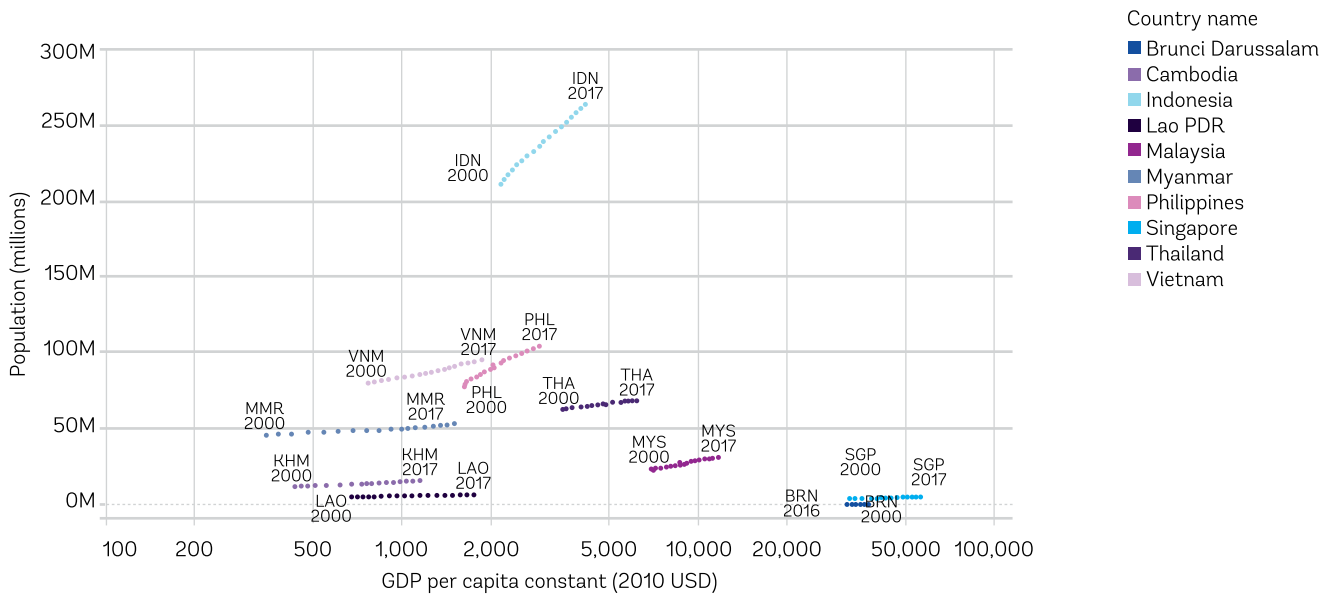
Source: WDI.
Notes: GDP per capita is shown in log-scale.

International indicators of well-being are measured using official household surveys. Most measures are based on household consumption per capita, with the exception of Malaysia and the Philippines, which use household income per capita (Table A.B.16). Survey frequency varies by country, and for years where data were unavailable poverty rates were estimated or projected. With the exception of Lao PDR, the ASEAN-7 countries have data as recently as 2015.

Overall, Thailand performs well across the selected global monitoring indicators, with low poverty rates and low non-monetary deprivations. However, based on official poverty rates, poverty increased in 2016 and 2018. In non-monetary dimensions of poverty Thailand exhibits high deprivation in education completion of adults. While education enrolment is high among school-aged children, education quality is below the OECD average as measured by the PISA score (2018). In the period 2015–17, growth of the bottom 40 percent has been negative in both income and consumption. In addition, the income-based Gini coefficient in Thailand is higher than the other two ASEAN countries with income-based inequality measures: the Philippines and Malaysia. When examining indicators sub-nationally, there is also variation within country; poverty rates in Bangkok and Central regions are much lower than in the outer regions of Thailand.

2.2 PROGRESS ON THE TWIN GOALS

The World Bank's twin goals are to end extreme poverty and boost shared prosperity. In 2013, the World Bank adopted two ambitious goals: ending extreme poverty globally and promoting shared prosperity in every country in a sustainable way. Progress toward the first of these goals is measured by monitoring the share of the global population living below the

International Poverty Line (IPL). The World Bank set a target of reducing the global poverty rate to 3 percent by 2030. The second goal is not defined globally, but rather tracks progress at the country level. Progress on the shared prosperity goal is measured by growth in the average income or consumption expenditure of the poorest 40 percent of the population (the bottom 40) in a country. This goal is not associated with a target in 2030, but it reflects the aim that every country should promote the welfare of its least privileged citizens for a more inclusive and equitable society.

2.2.1 ERADICATING EXTREME POVERTY

The pace of poverty eradication in the past decade in EAP has been unparalleled. While China's successful poverty reduction played a large role, ASEAN economies reduced poverty quickly as well. ASEAN-7 countries continue to make sustained progress in eradicating extreme poverty. According to the latest regional estimates, the percentage of people living in extreme poverty in the ASEAN-7 group fell to 4.2 percent in 2017, down from 5.3 percent in 2015. About 6.3 million people in the ASEAN-7 economies were lifted out of extreme poverty in the period 2015–17.

Compared with its ASEAN neighbors, Thailand's path of extreme poverty reduction started at a promisingly low point. Data show that even in 2002, Thailand's extreme poverty rate was very low, at just 1.14 percent (Figure 2.20). Thailand's extreme poverty rate was not only the lowest in the ASEAN countries, but also in the entire developing EAP region. In 2002, there were 0.73 million extreme poor in Thailand and this number declined to 0.02 million in 2017. With an international poverty rate of 0.03 percent, extreme poverty is no longer a serious concern for Thailand. While Thailand's poverty rate appears very low compared with other ASEAN countries, it is in line with expectations based on correlations between poverty and GDP. Figure 2.21 illustrates a scatter plot of extreme poverty and GDP in 2017 for ASEAN-7 countries.

Three of the ASEAN-7 countries, including Thailand, have reduced the incidence of extreme poverty to less than 3 percent. Thailand, Malaysia, and Vietnam have met the World Bank's first twin goal of reducing the percentage of people living on less than the international poverty line (IPL) to 3 percent by 2030 (though the first twin goal is a goal at the global level). Thailand and Malaysia have outperformed even some high-income countries by successfully reducing the proportion of people living under the US$1.90 IPL in 2017 to less than 0.1 percent.

Figure 2.20. **International poverty rate (US$1.90/day 2011PPP), selected ASEAN countries, 2002–17**
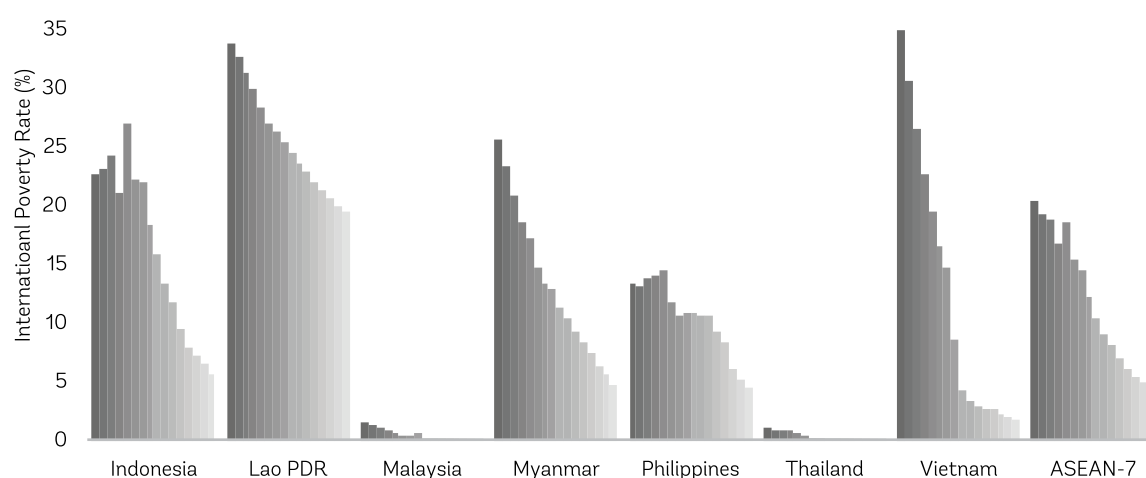
Source: EAP Team for Statistical Development, World Bank.
Notes: ASEAN-7 refers to the seven ASEAN countries where there is poverty data. Poverty rates are based on the International Poverty Line (US$1.90/day 2011PPP). Poverty rates includes estimates and projections.

The number of instances that poverty increased in ASEAN economies is minimal, though poverty has recently increased in Thailand multiple times. Survey frequency varies by country, which is a factor in the number of times that poverty can be counted. Nonetheless, Thailand has experienced the most instances of an increase in extreme poverty measured by the US$1.90 IPL among ASEAN economies. In the past few years, it is the only ASEAN country to experience an increase in extreme poverty. Based on Thailand's official poverty estimates, poverty increased five occasions since 1988: in 1998, 2000, 2008, 2016, and 2018.

Table 2.3. **Instances where extreme poverty increased since 2002**

	Year
Indonesia (consumption)	2004, 2006
Malaysia (income)	2009
Philippines (income)	2006
Thailand (consumption)	2009, 2012, 2016, 2018

Source: World Bank PovcalNet.
Notes: Based on survey data. Survey data have different frequency by country. See Annex A for information on household surveys in the ASEAN region. Poverty may increase in other years but at higher poverty lines.

Figure 2.21. International poverty rate (US$1.90/day 2011PPP) and log GDP per capita, 2017
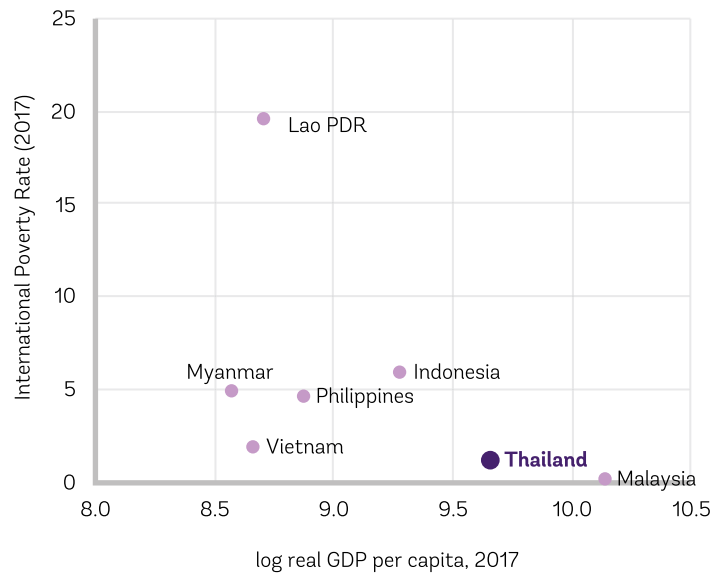
Source: EAP Team for Statistical Development, World Bank.
Notes: Poverty rates are based on the International Poverty Line (US$1.90/day 2011PPP). Poverty rates includes estimates and projections

Box 1.3. Thinking about World Bank poverty lines in baht

When the International Poverty Line (IPL) was first constructed based on national poverty lines for the 15 poorest countries, 60 percent of the global population was living in low-income countries. As a result, the average value of the national poverty lines in these 15 countries was meaningful for the vast majority of the poor and a large portion of the world's population. By 2013, however, only 8 percent of the global population was living in low-income countries (Fantom and Serajuddin, 2016). Consequently, in many countries, the use of average assessments of basic needs in low-income countries is gradually becoming less relevant. As the world grows wealthier and extreme poverty is increasingly concentrated in distinct geographic pockets, legitimate questions have been raised over whether the IPL is now too low to define whether someone is poor in all countries of the world. The World Bank's International Poverty Line (IPL) of US$1.90/day 2011PPP and is equivalent to B 26.16 per person per day in 2017 prices.

The **Upper Middle-Income Class poverty** line was derived as the median of a set of national poverty lines from UMIC countries, and is valued at US$5.50/day 2011PPP (Joliffe and Prydz, 2016). At this value, the UMIC poverty line is representative of local minimum basic needs that UMIC countries themselves define as necessary for day-to-day living. In the EAP region, this line is also used as the upper-bound threshold of the class of economically vulnerable (World Bank, 2018a). The UMIC poverty line is the median of the national poverty lines of countries in upper middle-income class countries (Table 1). This line, which is typical of upper middle-income countries, is designed to complement, not replace, the US$1.90 IPL.

Table 1.B.1. National poverty lines, circa 2011

Economy, income classification	Median
Low-income economy	1.90
Lower middle-income economy	3.20
Upper middle-income economy	5.50
High-income economy	21.70

Note: Values are rounded to nearest 0.10. Economies are classified on the basis of official World Bank income classifications, which rely on measures of per capita gross national income. Estimates are based on national poverty lines in 126 economies. The selected poverty line for each economy is the one that is closest in time to 2011.
Source: Jolliffe and Prydz 2016.

The UMIC poverty line is equivalent to B 75.73 per person per day in 2017 prices. This value is much closer to the average national household poverty line in Thailand. National-level poverty rates based on the UMIC and national poverty lines also trend very closely together.

The amount of B 75.73 per day is not how much cash someone has in their pocket to spend per day. This amount includes in-kind consumption, as well as housing. If the intrinsic value of housing is removed from this amount, then a person's pocket money per day is much less.

2.2.2 BOOSTING SHARED PROSPERITY [9]

The bottom 40 percent is growing in most of ASEAN.[10] High levels of shared prosperity in ASEAN-7 countries represent a continuation of over a quarter of a century of strong and broadly shared economic growth driven by labor-intensive development combined with investment in human capital, which particularly benefited the lower part of the distribution (Birdsall et al., 1993; Commission on Growth and Development, 2008). ASEAN countries with available shared prosperity data have succeeded in maintaining high levels of shared prosperity.

In some countries, the growth rate in the bottom 40 is high or has been increasing over time. In the case of Malaysia, Vietnam and Indonesia the shared prosperities in the latest period are higher than the EAP average of 4.73 percent in the period 2010–15 (World Bank, 2018b). High rates of shared prosperity in Malaysia have been linked to the increase in the minimum wage in 2012. In Indonesia, the Philippines and Vietnam growth in the bottom 40 has been higher when examined over more recent time periods compared with older time periods (Figure 2.22). For example, in Indonesia the bottom 40 grew at 4.1 percent per year in the period 2011–14, and 4.8 percent per year in the period 2014–17.

In Thailand, shared prosperity is lower than in previous periods, and even negative using the most recent data. Household consumption grew in the period 2014–15 and then stagnated and even declined among some groups. Observing

shared prosperity over multiple periods, growth of the bottom 40 was higher in the earlier periods. The period 2008–13 showed the highest rate of growth in the bottom 40, and much of this was driven by growth in farm incomes (Badiani-Magnusson, 2015; Sondergaard et al., 2016). The reversal in growth among the bottom 40 in the period 2015–17 is related to declines in all forms of market incomes, including stagnate wage growth and declines in net farm and net business incomes.

The shared prosperity premium is positive if the growth rate of the bottom 40 is higher than growth at the mean. Using 2010–15 data, developing EAP was the only region with positive shared prosperity premiums across all countries with available data (World Bank, 2018b). However, using more recent data, Thailand (2015–17) and Indonesia (2015–17) are now experiencing lower growth in the bottom of the distribution, and the shared prosperity premium is negative (Figure 2.23). The Philippines is the only country where the shared prosperity premium has been higher in recent periods compared with earlier periods.

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9 The shared prosperity measure represents the annualized growth rate of the mean household per capita consumption or income of the poorest 40 percent of the population (the bottom 40), where the bottom 40 are determined by their rank in household per capita consumption or income.

10 Shared prosperity cannot be calculated for Myanmar because there is only one data point.

Figure 2.22. **Growth of the bottom 40 and growth of the mean, selected ASEAN countries**

Figure 2.23. **Shared prosperity premium, selected ASEAN countries**
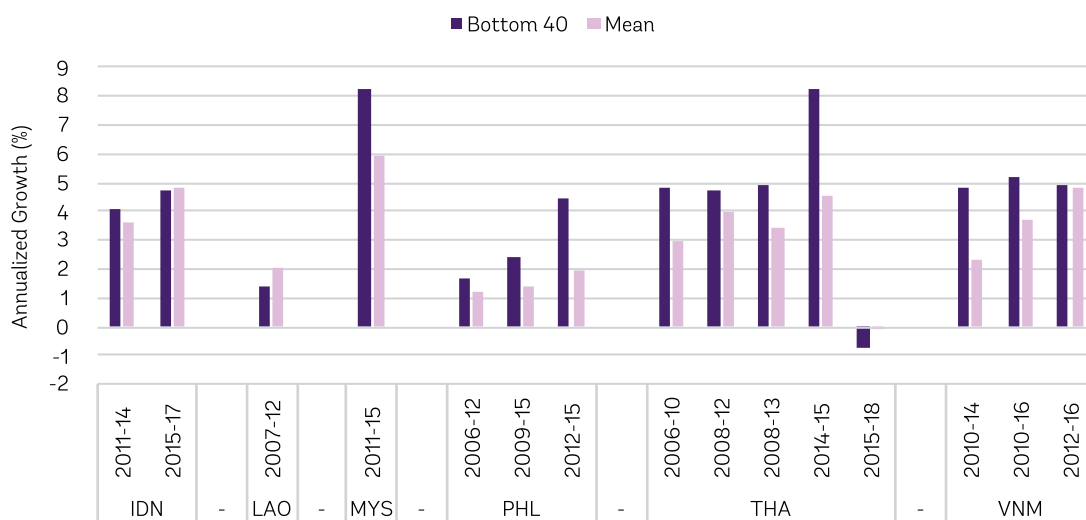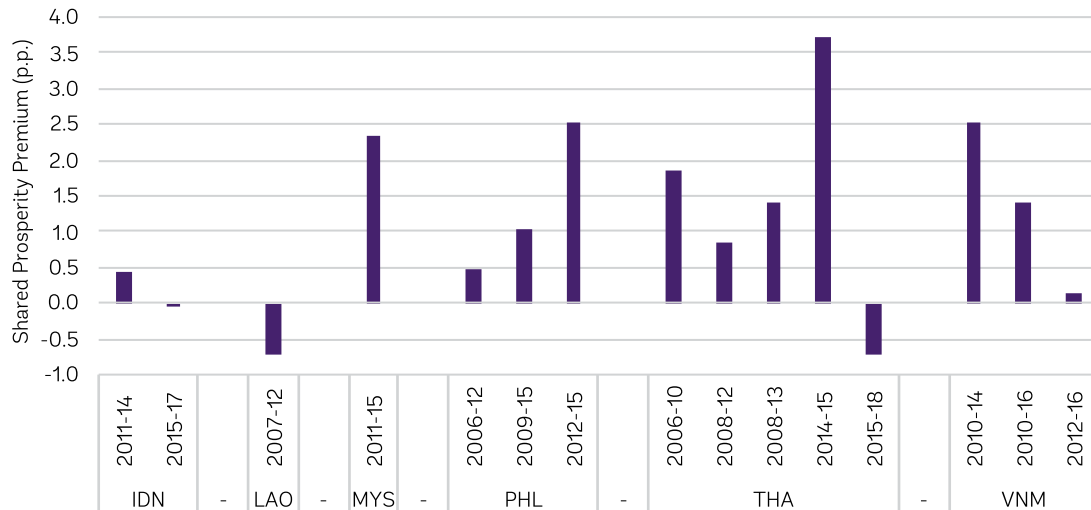
Source: Global Database of Shared Prosperity, various editions. World Bank staff calculations.
Notes: Shared prosperity refers to the growth on the mean of the bottom 40 percent of the population. Growth in household consumption, with the exception of Malaysia and the Philippines which is growth in income. MMR is not included because there is only one data point.

In addition, growth rates by decile are informative, since growth can be observed along the entire distribution. While the EAP region has traditionally seen strong growth, more recent data show that in some countries growth at the bottom of the distribution is lower than at upper ends of the distribution, and it is less evident that prosperity is being shared in ASEAN economies. In Thailand, recent data show that the lowest 2 deciles experienced a decline in household consumption (Figure 2.24). In Indonesia and Lao PDR, top deciles grew much faster than the bottom. In Vietnam's case, growth at the very bottom and very top was less than growth around the middle of the distribution. Interestingly, in Vietnam even though the bottom 40 on average is growing faster than the mean, a more nuanced picture show that the lowest 2 deciles are growing more slowly.

Figure 2.24. **Growth incidence curves, selected ASEAN countries**
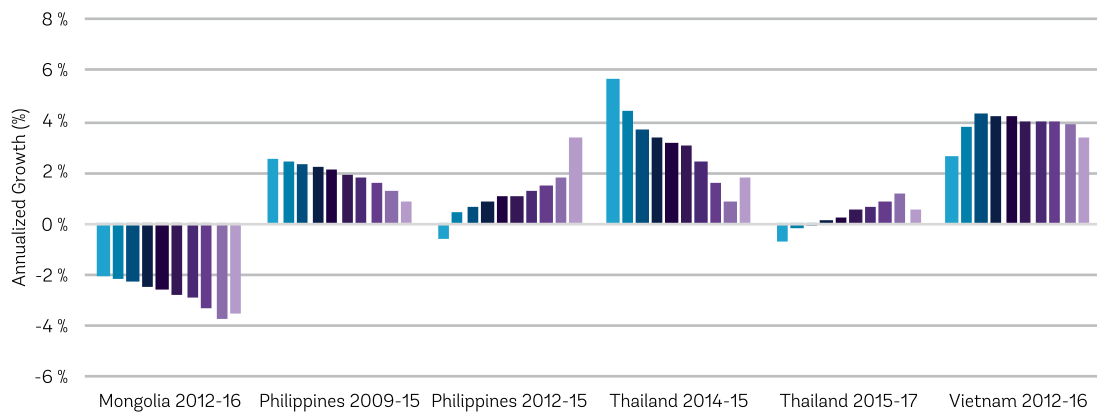
Source: World Bank staff calculations using PovcalNet.
Notes: Each bar represents one decile. The lowest decile is on the left, and the richest decile is on the right. The orange bars represent the bottom 40. Growth in household consumption, with the exception of Malaysia and the Philippines which is growth in income. MMR is not included because there is only one data point.

2.3 INEQUALITY

Thailand's level of inequality ranks differently when based on either income or consumption. Based on income, Thailand has higher inequality compared with other countries than when based on consumption (Figure 2.25). Thailand ranked in the third quartile using an income-based Gini coefficient but ranked in the middle using a consumption-based Gini. Thailand's consumption-based Gini estimates is 0.36, relatively lower in comparison with its income-based Gini of 0.45. From global experience in measuring inequality using Gini coefficients, income-based inequality is generally higher than consumption-based inequality, since income can have larger variation and include zero or negative incomes (World Bank, 2016). Among ASEAN countries that use household income to calculate inequality, Thailand has the highest Gini.

Figure 2.25. **Ranking of Gini coefficients, circa 2015**
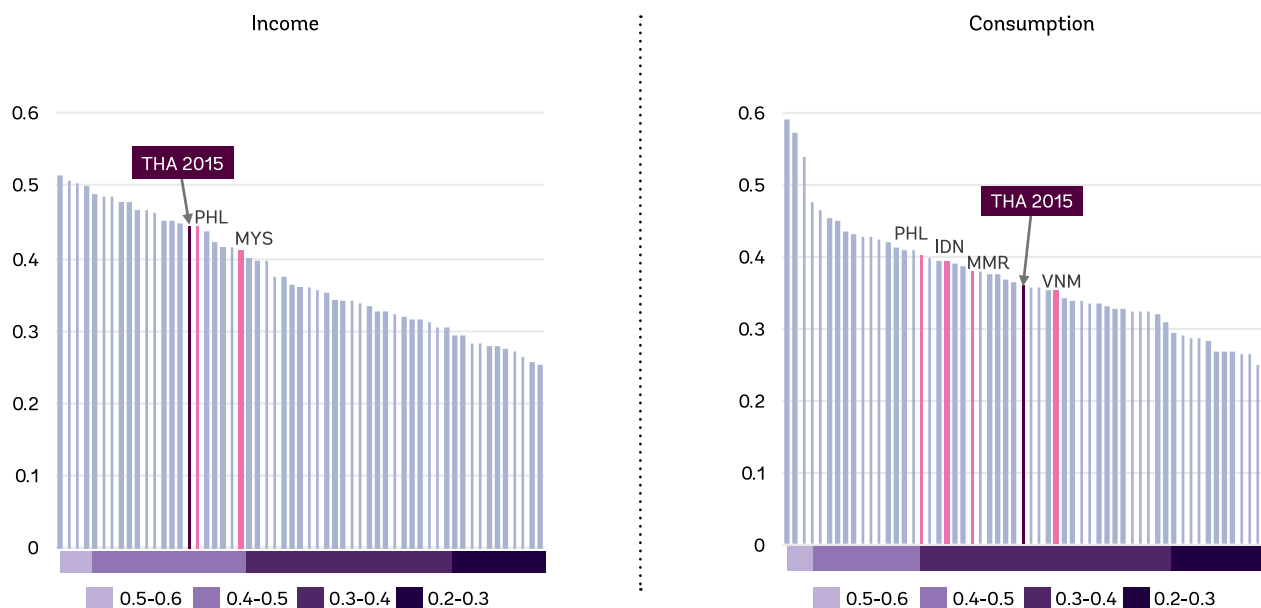
Source: World Bank staff calculations, PovcalNet.
Notes: Countries with data in circa 2015. Countries with income-based household survey data tend to be richer than countries with consumption. There are fewer countries with recent consumption data because consumption is usually collected in poorer countries where survey frequency is also lower. Higher income countries usually collection income data annually.

How inequality has evolved with economic development also varies among ASEAN-7 countries. Some countries have reduced inequality over time, while others have seen inequality increase (Figure 2.26). Both income-based and consumption-based Gini for the Philippines have declined slowly since 2000. Indonesia's consumption-based Gini coefficient started at a very low level of 0.29 in 2000. However, in 2016, Indonesia's consumption-based Gini is almost 10 percentage points higher than its lowest level in the 2000s. Vietnam's consumption-based Gini significantly declined between 2010 and 2012, but increased between 2014 and 2016. Malaysia has made great progress in reducing inequality, especially since 2004.

Over the long term, Thailand has exhibited a decline in income and consumption-based Gini coefficients, though inequality has increased in recent years. The consumption-based Gini coefficient fell from 0.45 in 1988 to 0.36 in 2017. The downward trend of Thailand's Gini coefficient is consistent with higher growth of the bottom 40 than the average of the population. However, in recent years, growth in the bottom of the distribution has declined and Thailand's inequality has slightly increased. The consumption-based Gini in 2017 is still slightly higher than its value in 2015.

Figure 2.26. **Gini Coefficient and GDP per capita**

Consumption-Based

Income-Based
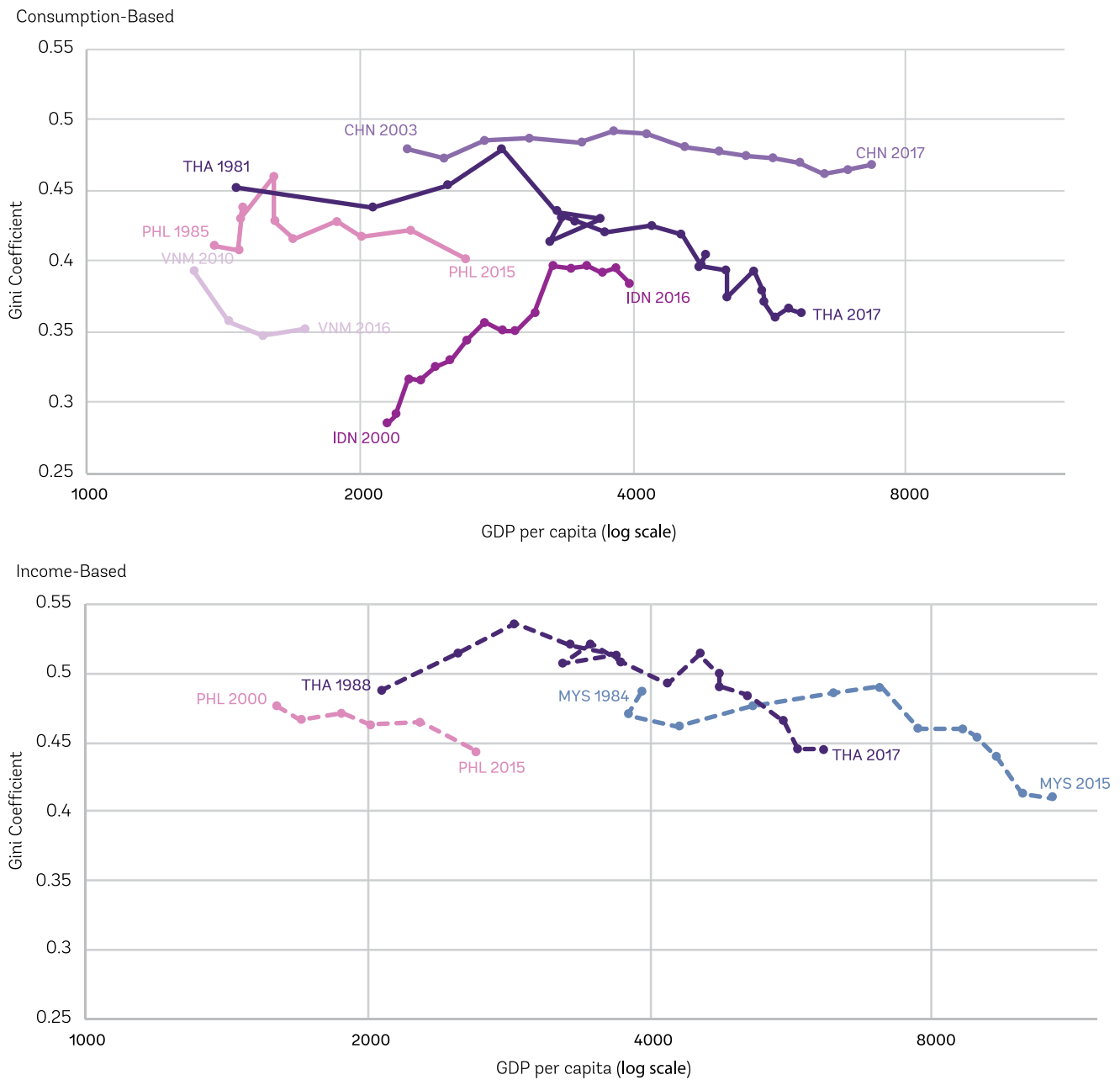
Source: World Bank staff calculations.

2.4 HIGHER POVERTY LINES FOR A GROWING REGION

Higher international poverty lines are required to match higher aspirations in more prosperous countries. Monitoring poverty at higher poverty lines is increasingly important as countries grow richer. A poverty line that is too low can lead to an inaccurate assessment of an individual's ability to function in society in a socially acceptable manner. Participation in society with dignity may require more goods in a richer country than in a poorer country. Social participation might thus be more closely related to the concept of meeting basic needs in the poorest of countries, but in richer countries the ability to participate in society might be costlier.

Thailand is an upper middle-income country with aspirations to become a high-income country. Thanks to rapid inclusive growth, all ASEAN economies are at least middle-income countries. Singapore and Brunei are high-income status, and Malaysia is on the cusp of high-income status. For individuals living in ASEAN countries, their conceptions of poverty and the standards of living they aspire to are much higher than what is benchmarked by the international poverty line. While eliminating remaining pockets of poverty must still be a priority, monitoring poverty at higher poverty lines is becoming increasingly important to ensure appropriate policy focus.

In 2017, the ASEAN-7 economies were home to about 632 million people. Thailand represented about 11 percent of this population (Figure 2.27).

Figure 2.28 illustrates the poverty rate and also the number of poor by four poverty lines. The size of the bubbles represents the population of the poor at the respective poverty lines. The level of the bubbles indicates the poverty rate. For example, the upper middle-income class (UMIC) poverty rate for Thailand in 2017 is 7.8 percent, and corresponds to 5.4 million UMIC poor. In the ASEAN-6, there are 276 million UMIC poor. Since Indonesia comprises about 46 percent of the ASEAN-6 population, most of the trends in poverty rate and population are influenced by Indonesia's poverty rates.

Irrespective of the exact poverty line used, ASEAN countries have reduced poverty. Among the ASEAN-6, the number of poor measured based on the US$3.20 lower middle-income class (LMIC) poverty line dropped from 141 to 122 million between 2015 and 2017 (Figure 2.28). The LMIC poverty rates declined by 4 percentage points. Based on the UMIC poverty line of US$5.50/day, UMIC poverty rates dropped by 6 percentage points, lifting 26 million people out of economic vulnerability. However, in 2017, nearly half of the ASEAN-6 population were still living on less than US$5.50 per day, in sharp contrast with Thailand's much smaller proportion of 7.8 percent. Moreover, virtually all of the ASEAN-6 populations are living below the middle-class poverty line of US$15/day 2011PPP.

Figure 2.27. Population of ASEAN-7 economies, 2017
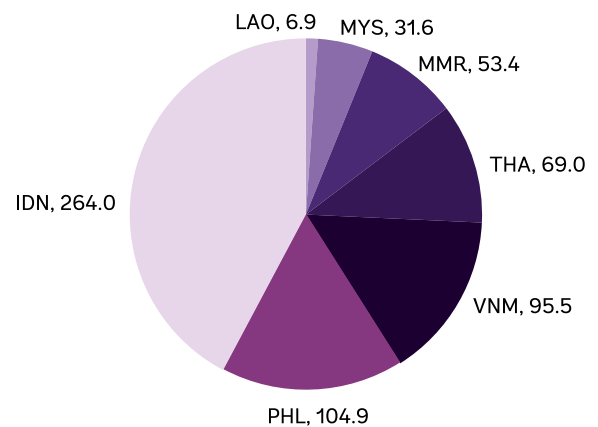
Source: WDI.
Notes: Population in million in 2017.

Thailand's poverty rates measured by higher poverty lines increased after 2015. Although the size of Thai population living below the US$5.50 line is relatively small, the UMIC poverty rate was higher in 2017 than in 2015 (Figure 2.28). However, the poverty rate based on the US$15/day line was lower in 2017 than 2015, indicating that growth did occur at the top, but not at the bottom, of the income distribution. This is consistent with growth incidence curves showing negative growth at the bottom of the distribution, while the top still grew (Figure 2.24).

Figure 2.28. The proportion and number of poor, Thailand vs ASEAN-6

● $1.90/day 2011 PPP International Poverty line (IPL)
● $3.20/day 2011 PPP Lower-Middle-Income Poverty line (LMIC)
● $5.5/day 2011 PPP Upper-Middle-Income Poverty line (UMIC)
● $15/day 2011 PPP Middle-Class line
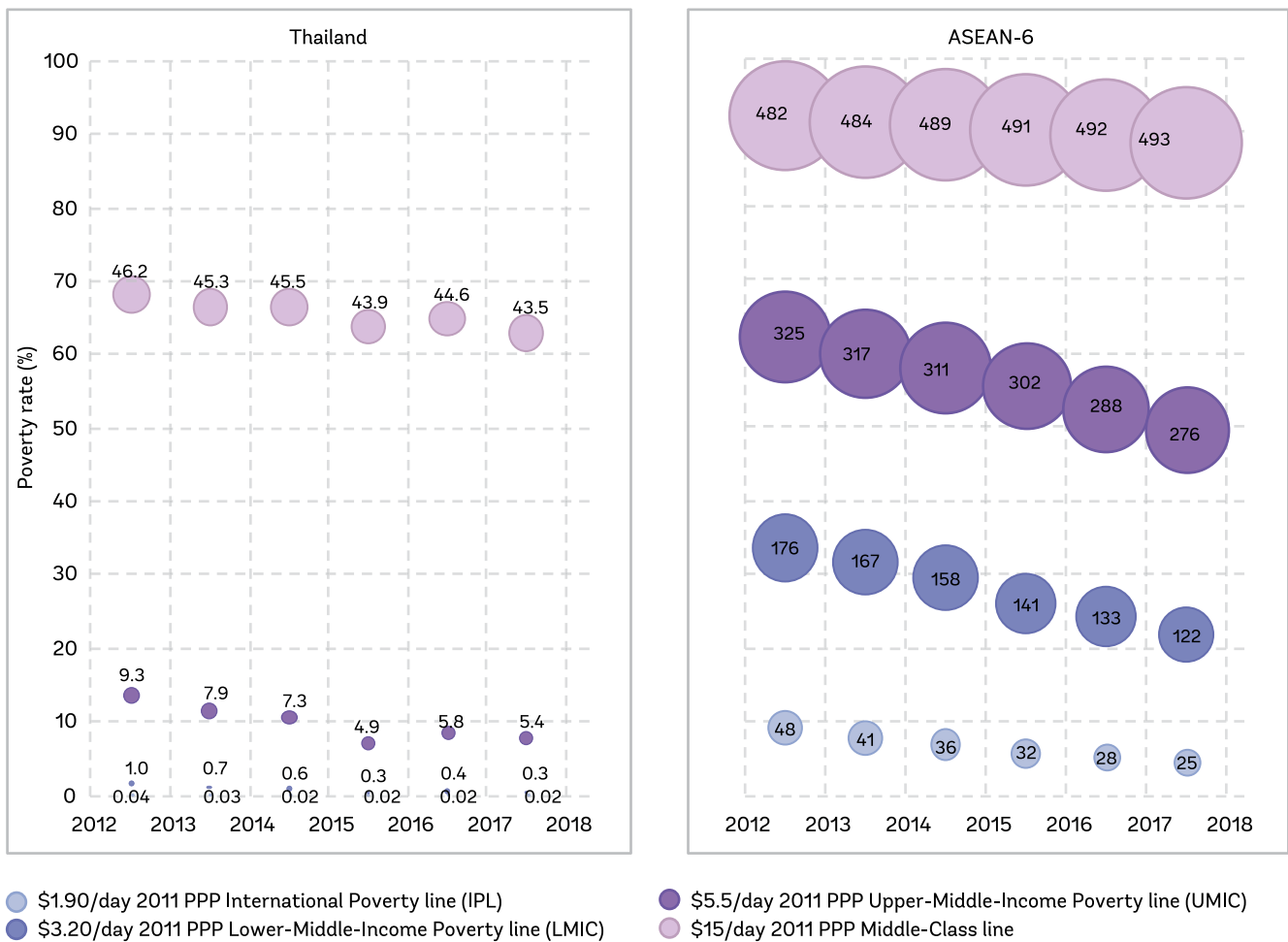
Source: EAPTSD.
Notes: ASEAN-6 refers to Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, and Vietnam. Poverty rates for ASEAN-6 includes projections and interpolations. Labels indicate the number of poor and proportional to the size of the bubble.

The pace of poverty reduction can also be witnessed through trends in the distribution of economic classes.[11] As a prosperous country, over four-fifths of the Thai population are at least economically secure, while the proportion of the economically secure class is only about half for the ASEAN-6 group. The middle class in Thailand is also growing at a faster rate than the ASEAN-6. The overall middle-class growth rates in the other countries are generally slow, except for Malaysia, and are in some cases such as the Philippines almost stagnant.

Growth strategies that helped to eradicate extreme poverty in most of developing EAP will likely not be sufficient to also lift households into the middle class. Outward-oriented growth, basic human capital development, and sound economic governance helped lift one billion people in EAP out of extreme poverty. Nonetheless, these foundational policies will not guarantee that one billion people will also be lifted into the middle class. The EAP regional middle-class poverty line is almost eight times higher than the international poverty line. Countries and challenges are also evolving. Even as the size of the middle class is increasing, middle-class households can still be exposed to risks and fall back into poverty. This is a relevant concern as the region experiences uncertainties from trade tensions and slowing growth.

11 For full definitions of economic classes, see Riding the Wave. The extreme poor, living on less than the international poverty line (US$1.90/day, 2011 PPP); the moderate poor, living on US$1.90 to US$3.20/day (2011 PPP); the economically vulnerable, living on US$3.20 to US$5.50/day (2011 PPP); the economically secure, living on US$5.50 to US$15/day (2011 PPP); and the middle class, living on more than US$15/day (2011 PPP).

Figure 2.29. **Distribution of population by economic classes, selected ASEAN countries**

Middle class ■ Economically secure ■ Economically vulnerable ■ Moderate poor ■ Extreme poor
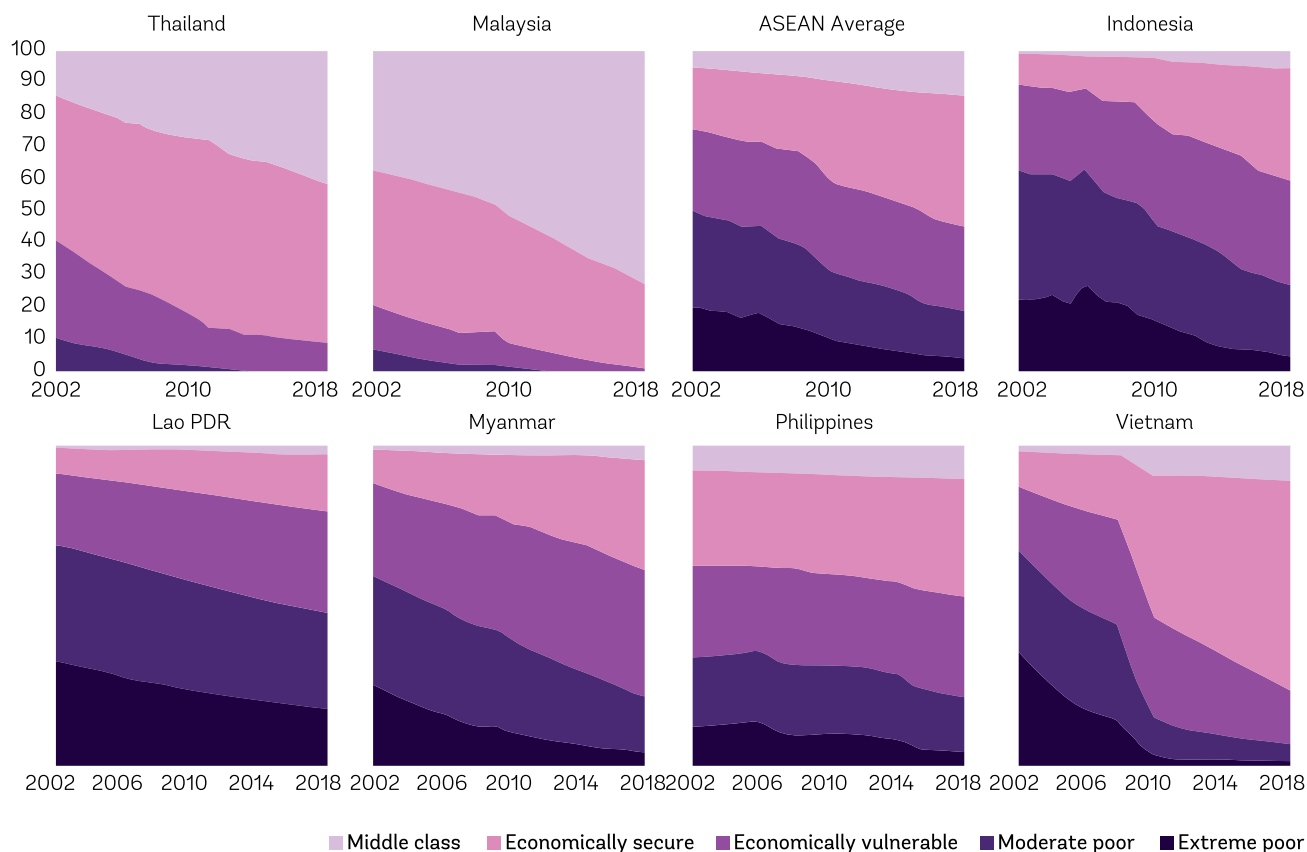
Source: EAPTSD.

2.5 MULTIDIMENSIONAL POVERTY MEASURE

The World Bank's multidimensional poverty measure (MPM) was established to encompass more dimensions of human well-being. Monetary measures are the traditional basis for the World Bank's poverty estimates. However, in many settings, important aspects of well-being, such as access to quality health care or a secure community, are not captured by standard monetary measures. To address this concern, the World Bank developed a multidimensional poverty measure (MPM), which includes deprivations in both monetary and non-monetary aspects. Table 2.4 illustrates the three dimensions considered in the World Bank's MPM: monetary well-being, education, and access to basic services. (See Chapter 4 of the 2018 PSPR for a technical discussion on the construction of the World Bank's MPM.)

Table 2.4. **The World Bank's multidimensional poverty measure (MPM), dimensions of well-being and indicators of deprivation**

Three dimensions	Six deprivations
Monetary well-being	• Daily consumption or income less than US$1.90 per person.
Education	• No adult in the household (ages of grade 9 or above) has completed primary education.
Access to services	• The household lacks access to limited-standard drinking water. SDG "at least limited" drinking water is drinking water that comes from an improved source (for example, piped, borehole, protected dug well, rainwater, delivered water, and so on).
	• The household lacks access to limited-standard sanitation facilities. SDG "at least limited" sanitation means using improved sanitation facilities (for example, flush/pour flush to piped sewer system, septic tank, a composting latrine, and so on).
	• The household has no access to electricity.

Source: World Bank, 2018b.

Thailand's multidimensional poverty rate is slightly higher than monetary poverty rate, while the other ASEAN countries have larger gaps. Thailand's multidimensional poverty rate is 0.1 percent, which is only slightly higher than its monetary poverty rate (0.03 percent) based on the IPL of US$1.9/day 2011PPP (Figure 2.30). In other ASEAN countries, multidimensional and monetary poverty rates have larger gaps. The largest difference between monetary and MPM poverty occurs in Myanmar, where the gap is almost 9 percentage points.

High deprivation rates in education or access to services can exist in countries with low levels of monetary poverty. Monetary and non-monetary poverty are correlated, but not perfectly so. Even in countries where the level of extreme poverty is below 1 percent, deprivations in non-monetary aspects of life are still present, which reflects the multifaceted nature of poverty. Across the ASEAN countries, Myanmar and Lao PDR consistently have the highest deprivation rates in non-monetary dimensions (Figure 2.31). However, Lao PDR's data are also the oldest. Lack of limited-standard sanitation is a common deprivation in ASEAN countries, with four countries having deprivation rates in this dimension higher than 15 percent. Deprivations in limited-access drinking water is also an issue; four countries have deprivations higher than 10 percent.

The improving state of education in EAP means that deprivations in education enrolment are typically lower than deprivations in education attainment (Figure 2.31). Education enrolment is measured as enrolment of school-aged children, while education attainment measures completed education of adults in the household. In the region, monetary poverty is less correlated with education deprivations than with access to infrastructure deprivations, partly because compulsory education is becoming the norm. Most children are obtaining education levels that are higher than their parents, which is measured by absolute education mobility. In EAP, absolute education mobility among the latest generation of adults (those born in the 1980s) is on a par with the average for high-income economies and is significantly higher than the average for developing economies (Narayan and Yang, 2018). However, other issues related to education quality are still concerns in some countries (Crawford et al., 2018).

Thailand's MPM is the lowest in the ASEAN group, but the specific deprivation in education attainment is high. Thailand performs well in five of the six dimensions in both monetary and non-monetary measurements. However, the deprivation rate in education attainment is almost 15 percent and is higher than all other countries with the exception of Myanmar (Figure 2.31). In Thailand, the current 12-year compulsory education system was initiated in 1977, which explains the different levels of deprivations in attainment and completion. While virtually all Thai children are enrolled in school because it is compulsory, the education completion of adults is much lower. Completion of even primary education is very low among older cohorts.

Non-monetary deprivations are higher in some regions of ASEAN than in others. In developing EAP, the difference in non-monetary poverty between urban and rural areas is higher than the difference in monetary poverty (World Bank, 2018b). The multi-dimensional poverty rate in rural areas is much higher than the monetary poverty rate, while in urban areas the monetary and multidimensional poverty rates are similar. Deprivation rates in education and access to services are higher in rural areas; households that are not monetarily poor may lack adequate schooling or access to basic infrastructure services. On the other hand, in urban areas of EAP, availability and access to public services is improved. While not measured by the indicators of non-monetary poverty presented here, there also are important differences in the quality of public services between rural and urban areas to consider.

Figure 2.30. Monetary and multidimensional poverty headcounts, selected ASEAN countries

Figure 2.31. **Deprivation rates in different dimensions**

■ THA 2017 ■ IDN 2016 ■ LAO 2012 ■ MMR 2015 ■ PHL 2015 ■ VNM2016
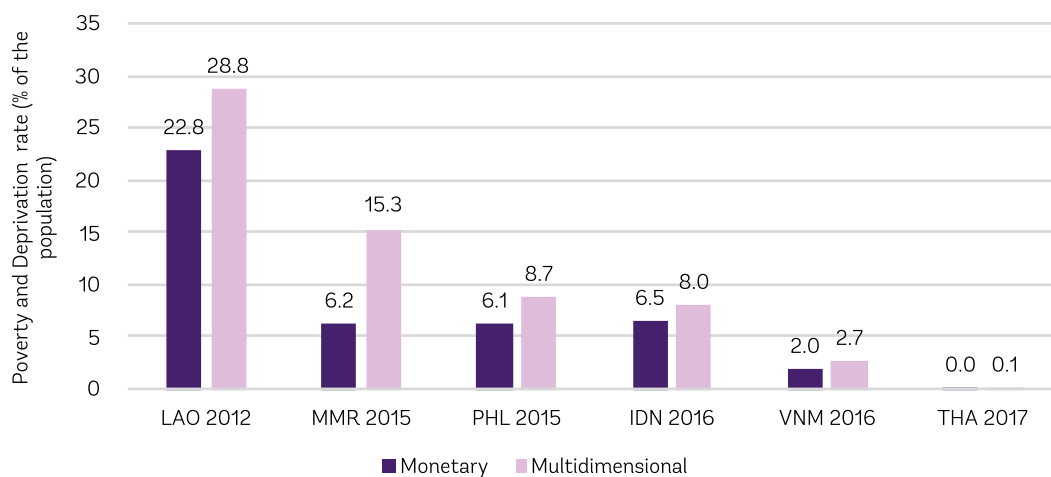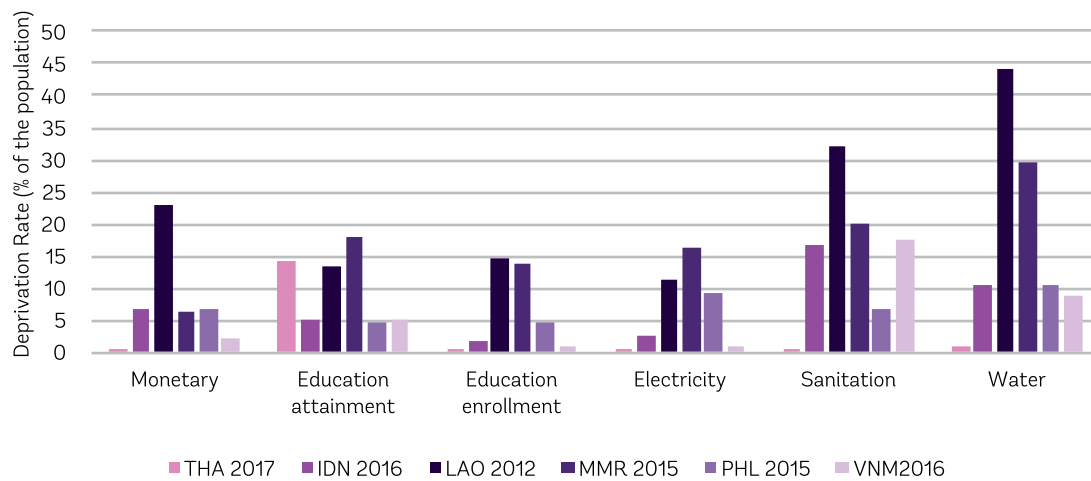
Source: World Bank, 2018b, and EAPTSD.
Notes: MPM for Malaysia is not available.

Sub-regional calculations show that even in countries where average deprivations are low, there can be pockets with high deprivations. While deprivations are generally low in urban and central areas, they can be much higher in rural and remote areas in the same country. For example, while Thailand on average has very low deprivation in access to drinking water, Mae Hong Son and Narathiwat provinces have deprivations higher than 40 percent. In the Philippines, the deprivation rate in drinking water ranges from over 46 percent in Mindanao to less than 1 percent in the capital region.

2.6 CONCLUSION

As one of ASEAN's most prosperous countries, Thailand performs well along most indicators of poverty and equity. Based on UMIC poverty lines, poverty increased in 2016 and again in 2018. An increase in poverty among ASEAN economies is uncommon. After 2015, growth of household income and consumption was stagnant and even negative in the lower ends of the distribution. In terms of inequality based on income (rather than consumption), Thailand's inequality is higher than the two other ASEAN countries that also use income to compute inequality.

PART
02

DRIVERS AND
SOURCES OF THE
RECENT CHANGES IN POVERTY

CHAPTER 03.
SOURCE OF CHANGES IN POVERTY[12]

The recent increases in poverty in 2016 and 2018 call for a better understanding of the drivers and influences of these welfare changes. What were the main contributors to the recent increases in poverty? This chapter uses an income decomposition method to understand the role of different components of household income and employment on observed changes in poverty. The source of poverty reduction in Thailand has evolved, from one that was market driven on labor and wages, to one where farm income plays a significant role. Analysis in this chapter provides an updated understanding of the sources of changes in poverty reduction in the period 2015–17.[13] During this period, wages and net business income declined in urban areas, while net farm income declined in rural areas. It is unusual that these sources of labor income are linked to increases in poverty. Globally, labor income is typically the main channel of poverty reduction. Public assistance income played a role in buffering households from worse outcomes.

3.1 RECENT OBSERVED CHANGES IN POVERTY

The source of changes in poverty in Thailand has evolved. Existing work examined factors contributing to changes in poverty and inequality in the period 1988–2013 (Badiani-Magnusson et al., 2015; Sondergaard et al., 2016). Findings showed two distinct periods before and after 2000, during which poverty reduction was characterized by different sources. Before 2000, the main contribution to poverty reduction was growth. Increases in labor income drove the majority of poverty reduction as numerous off-farm jobs were being created, and the number of jobs being created requiring low education was declining. In the period 2000–13, the main driver of poverty reduction shifted and was driven by farm incomes. However, many of the benefits of rice price support went to richer farmers and may have negatively affected net buyers of rice (Sondergaard et al., 2016). The large role of farm incomes was partly due to increased production, commercialization, and integration into global value chains. But it was also partly due to the domestic price support schemes and declining growth in off-farm jobs.

From 2015 onward, poverty reduction slowed down as household incomes and consumption growth stagnated. Labor market indicators during this period also showed weaknesses in agriculture employment, as well as low wage growth. Official poverty rates has increased twice in recent years, in 2016 and 2018. The poverty increase in 2018 was larger and affected all regions. In some regions, urban areas

were more negatively afflicted. Arguably, the poverty increase in 2018 is more important to dissect, since it was larger and more widespread. However, the estimation strategy used in this chapter cannot be applied to 2018, since income data were not collected in that year.

Geography, education, and the sector of employment of the head of household are related to the likelihood of being in poverty. Poverty is more prevalent in households where the head has low education or employment in the agriculture sector. These household attributes are also correlated to geography. Low quality education is more common in rural areas that receive fewer resources (Lathapipat and Sondergaard, 2015). The sector of employment is also very reflective of geography, since the majority of high-value manufacturing and services production are located in the Bangkok and Central regions. Statistics based on the upper middle-income class poverty line (US$5.5/day 2011PPP) for the poverty rates, the distribution of the poor, and the distribution of the population are shown in Table 3.5.

The increase in poverty in the period 2015–17 was more prevalent in some types of households than in others. By groups, households where the head is working in the agriculture sector, or have low-education, experienced the largest increase in poverty (Figure 3.32). There are large differences by regions.[14] Most of the increase in consumption-based poverty occurred in the North region. By sector, poverty increased the most among households where the head is working in the agriculture sector. The level of education of the household head is also a strong determinant of poverty. By education level, increases in poverty were experienced almost exclusively by household heads with low education levels. Over half of households are headed by someone with primary education or less.[15] These factors are correlated; many households with low education are also agricultural and live in the North, Northeast, and South regions.

....

12 This chapter uses international measures of poverty since official household poverty lines are not available, and thus official estimates of poverty cannot be replicated in micro analysis. The source of changes in poverty is examined pertaining to the upper middle-income class poverty rate (US$5.5/day 2011PPP). See Annex B for more details on the UMIC poverty line. See Chapter 1 for differences between the national and international poverty methodologies.
13 A sample frame change between 2013 and 2014 limits the comparability of income and consumption trends before and after this break. Post 2014, household income is collected only in 2015 and 2017.
14 There is little difference in the contribution of poverty changes from urban and rural areas. This may be due to the definition of urban in the SES. Thailand is slowly urbanizing but still more than half of the population live in rural areas. In reality, the level of urban residents may be even higher. The classification of urban and rural areas is more correctly denoted as municipal and non-municipal areas. Municipal areas (urban) are the provincial capitals. Non-municipal areas are the remaining province areas. Some of these areas may be urban if considering population density and built-up areas.
15 The 12-year compulsory education system was initiated in 1977.

Observing where poverty increased is the first step to understanding why it increased. While Figure 3.32 illustrates how poverty changes across groups of the population contributed to the total change, it does not reveal why poverty changed, or its sources. There are some clues to where and why poverty is increasing, from an examination of which types of households experienced the greatest increase in poverty. Increases in poverty are likely related to changes in farming and the agriculture sector. To confirm these hypotheses, this chapter begins by discussing the empirical trends of household income by component. A decomposition of household income and employment will be used to quantify the changes in poverty by source. The sources examined include the share of adults and employed adults in the household, wages, net business, net farm, pension, remittance, public assistance income sources, and in-kind consumption.

Figure 3.32. **Decomposition of the change in poverty (percentage points), by group, 2015–17**
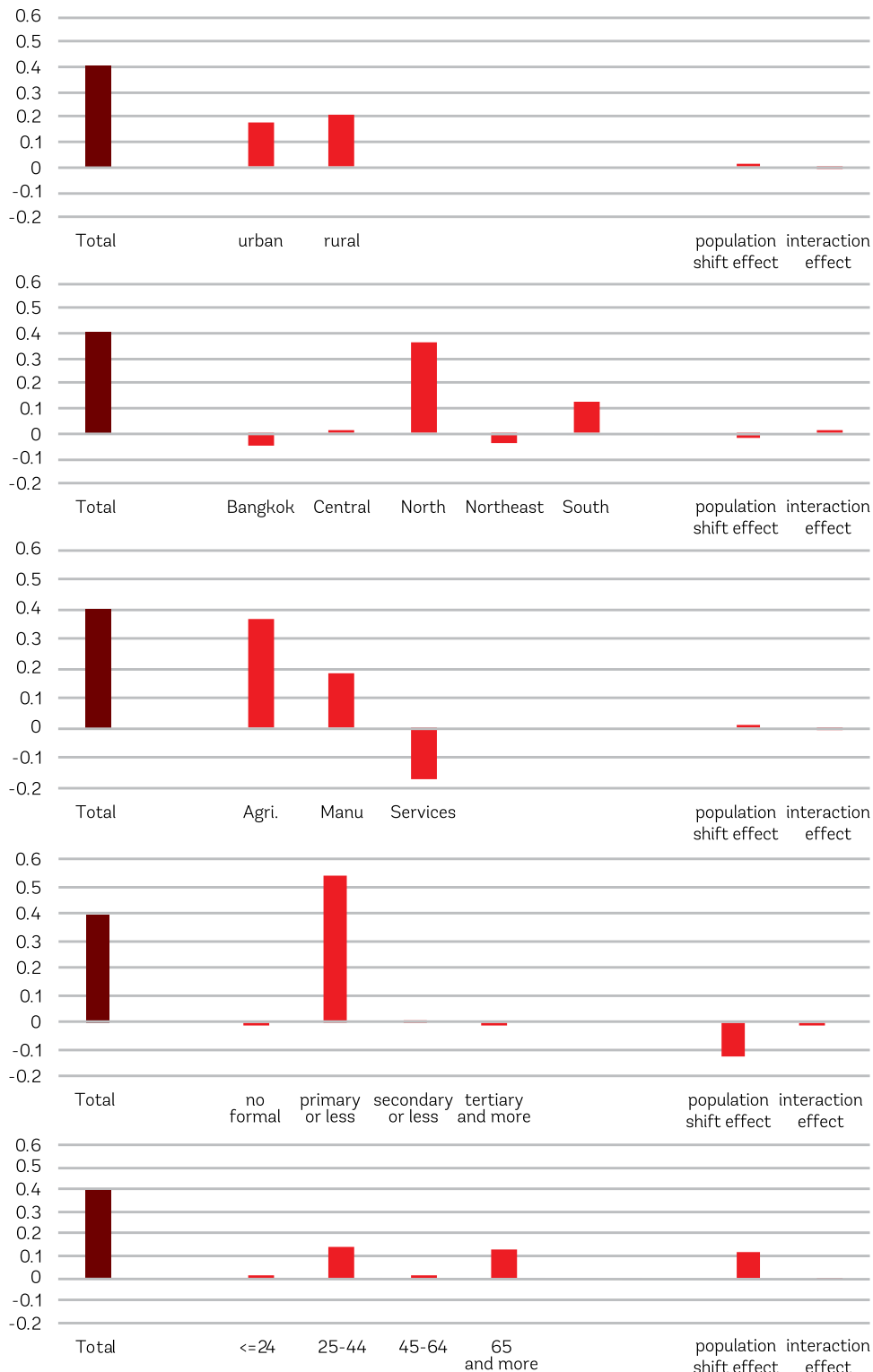
Table 3.5. **Poverty statistics by groups, international upper middle-income class poverty (US$5.5/day 2011PPP)**

	Poverty Headcount Rate					Distribution of the Poor					Distribution of the Population				
	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018
National	10.6	7.1	8.4	7.8	8.6										
Area															
Urban	4.9	3.3	4.2	3.9	4.0	20.0	20.6	21.9	22.0	20.3	43.4	44.1	43.9	44.0	43.9
Rural	15.0	10.1	11.7	10.8	12.2	80.0	79.4	78.1	78.0	79.7	56.6	55.9	56.1	56.0	56.1
Region															
Bangkok	0.6	0.7	0.5	0.3	0.2	0.7	1.3	0.7	0.5	0.3	11.9	13.2	12.4	12.5	12.4
Central	3.1	2.7	3.4	2.8	3.2	8.3	10.7	11.7	10.6	10.9	28.6	28.1	28.6	28.9	29.1
Northern	15.1	9.9	11.5	12.4	13.2	24.9	23.6	23.6	27.0	26.0	17.5	17.0	17.2	17.0	17.0
Northeastern	19.8	12.7	14.5	13.0	14.7	53.0	50.6	48.9	46.7	47.0	28.4	28.4	28.2	27.9	27.6
South	10.3	7.4	9.4	8.5	9.7	13.1	13.8	15.2	15.2	15.8	13.5	13.3	13.5	13.8	14.0
Age of the household head															
15-24	3.3	2.2	2.8	2.3	3.2	0.6	0.5	0.6	0.5	0.6	1.8	1.7	1.8	1.6	1.5
25-44	7.7	5.1	5.8	5.7	6.6	19.2	17.9	17.2	16.8	17.5	26.5	25.1	24.7	22.8	22.9
45-64	10.1	6.8	7.9	7.1	7.6	47.7	47.4	47.1	45.7	44.6	50.0	50.0	50.1	50.2	50.6
65 and more	15.9	10.5	12.6	11.4	12.9	32.5	34.2	35.1	37.0	37.4	21.6	23.3	23.4	25.3	24.9
Education of the household head (15+)															
no formal	30.1	21.7	22.6	21.9	23.7	14.8	14.9	13.5	13.0	12.8	5.2	4.9	5.0	4.6	4.6
primary or less	13.3	9.0	11.0	10.2	11.2	77.1	77.3	79.0	79.3	77.1	61.3	61.3	59.9	60.4	59.1
secondary or less	3.6	2.2	2.5	2.3	3.2	8.0	7.4	7.4	7.5	9.7	23.7	24.0	24.9	25.2	25.7
tertiary and more	0.1	0.2	0.1	0.2	0.3	0.1	0.3	0.2	0.2	0.4	9.7	9.8	10.2	9.8	10.6
Sector of employment of the employed household head															
Agriculture	18.3	12.3	14.8	13.6	14.7	54.7	51.4	52.9	50.8	50.5	31.6	29.9	29.9	28.9	29.6
Manufacturing	6.7	3.8	4.2	4.8	5.4	9.8	8.4	7.9	9.3	9.3	15.6	15.9	15.7	15.2	14.9
Services	2.8	2.6	2.4	2.2	2.4	8.1	11.1	8.8	8.4	8.7	30.8	30.5	30.7	29.5	31.1
Head Not Working	13.2	8.7	10.7	9.3	11.1	27 3	29 1	30 4	31 5	31 5	22 0	23 7	23 7	26 4	24 5

Source: World Bank staff calculations using the SES.
Notes: Household current consumption per capita. The poverty line is the UMIC poverty line (US$5.5/day 2011PPP).

3.2 TRENDS IN HOUSEHOLD INCOME

Empirical trends can provide intuition about the main contributions to changes in poverty. This section first describes the incidence of income to understand which households are receiving certain types of income. Second, the trends in income are examined over time. Household income data are collected every other year, and this section examines 2015 and 2017 data. Earlier years are not used because a survey break between 2013 and 2014 limits comparability (see Annex C for definitions of income components).

Sources of income vary considerably by region, and these differences can be related to differences in regional economic growth engines. Figure 3.33 illustrates the incidence of income sources, or the share of people living in households that have a particular source of income. For example, 68 percent of the population in the Northeast live in households with net farm income. Almost three-quarters of the population in Bangkok are in households that receive wage income, compared with less than half in the North region. Remittances and public assistance income are also the most common in the Northeast region, where rural-to-urban migration is common.

Figure 3.33. **Incidence of income sources**

Regions (2017)

■ Bangkok ■ Central ■ North ■ Northeast ■ South

By Decile (2017)

■ 1=poorest ■ 2 ■ 3 ■ 4 ■ 5 ■ 6 ■ 7 ■ 8 ■ 9 ■ 10=richest
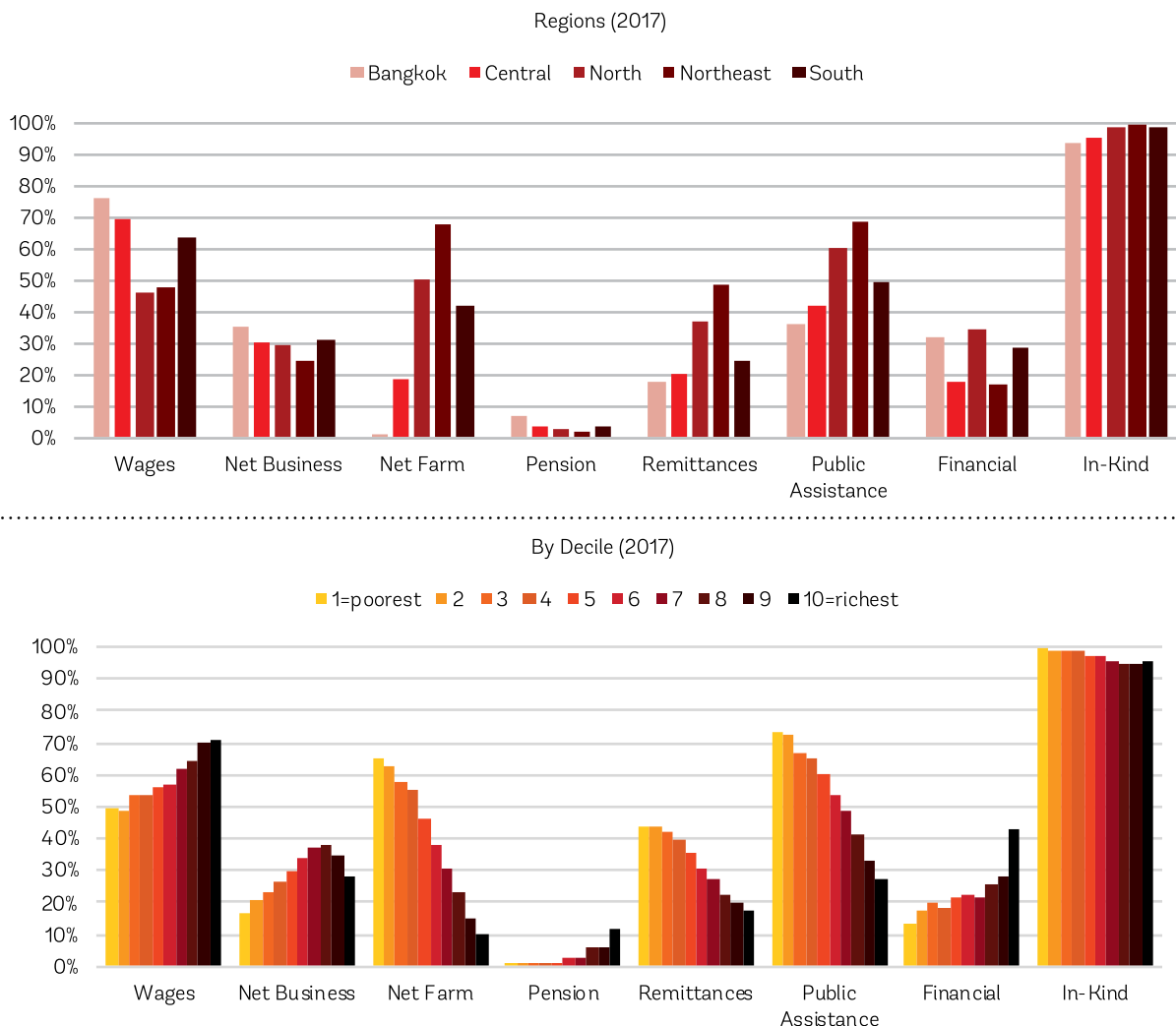
Source: World Bank staff calculations using THA SES 2017.
Notes: Incidence refers to non-zero values.

Income that is in-kind reflects welfare but is not cash. Housing and food that is consumed reflect welfare because the household is consuming and has shelter. However, these monetized values do not reflect cash that the household may spend on other items. In-kind is the most common form of income because it includes imputed rent and in-kind consumption of food. In the 2017 SES, imputed rent is a large component of the consumption aggregate and is also included in the income aggregate. Fourteen percent of the sample responded with a rental payment; 86 percent of the sample are home owners vs 14 percent renters. Therefore, 86 percent of households have an imputed housing value. In food consumption, about one-quarter of households consume in-kind vegetables, grains and cereals, and milk and dairy. About one-fifth of households received complementary milk for enrolled students.

The incidence of income sources also exhibits clear patterns across the distribution. Among the poor, remittances and public assistance income are about one-fifth of household income. Poor households are much more likely to have farm income, remittances, and elderly or disability assistance as income sources. Wealthy families are more likely to have

labor, financial, and pension income sources. Pension annuity is the least common form of income source.

In some regions, household income comprises of large shares of non-labor income sources. Figure 3.34 illustrates the composition of household income by source. While labor income comprises a large share of household income in Bangkok, Central, and South regions, it is only about one-quarter of household income in the North and Northeast. Households in the Bangkok and Central regions have the highest share of income from labor and business. Income sources from remittances, farm, and elderly assistance are larger in the North and Northeast regions. Over 40 percent of average total household income in North and Northeast areas are from non-labor sources.

Households in the North and Northeast have the largest share of income from net farm earnings. Since 2011, the structure of income has noticeably changed in the North, Northeast and South regions. In particular, farm income has become a much smaller share of total income. Net farm income is not always a gain; about 5 percent of the population are in households with negative net farm income.

Figure 3.34. **Average composition of total household income, by region and decile, 2017**
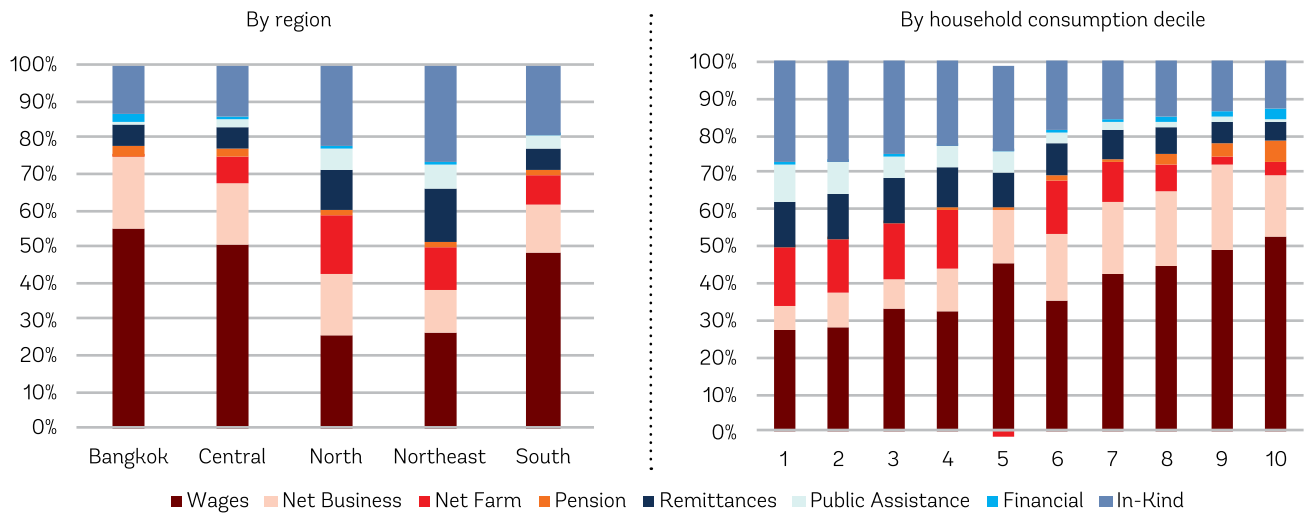
Source: World Bank staff calculations, THA SES 2017.

To better understand the sources of change in total household income, it is useful to examine the empirical trends. The trend in average monthly household income per capita by component is illustrated in Figure 3.35. The break in data series between 2013 and 2014 is shown, since the data before and after may not be comparable across certain population groups. Wage income is the highest source of income. Business income is the second-highest income source in urban areas, while farm income is the second-highest source in rural areas. For net business, very few households reported negative incomes. Negative net farm income is more common, however. About 5 percent of the population live in households with negative farm income. In-kind income is high because it includes the intrinsic value of housing.

Figure 3.35. **Average composition of total household income, by region and decile, 2017**
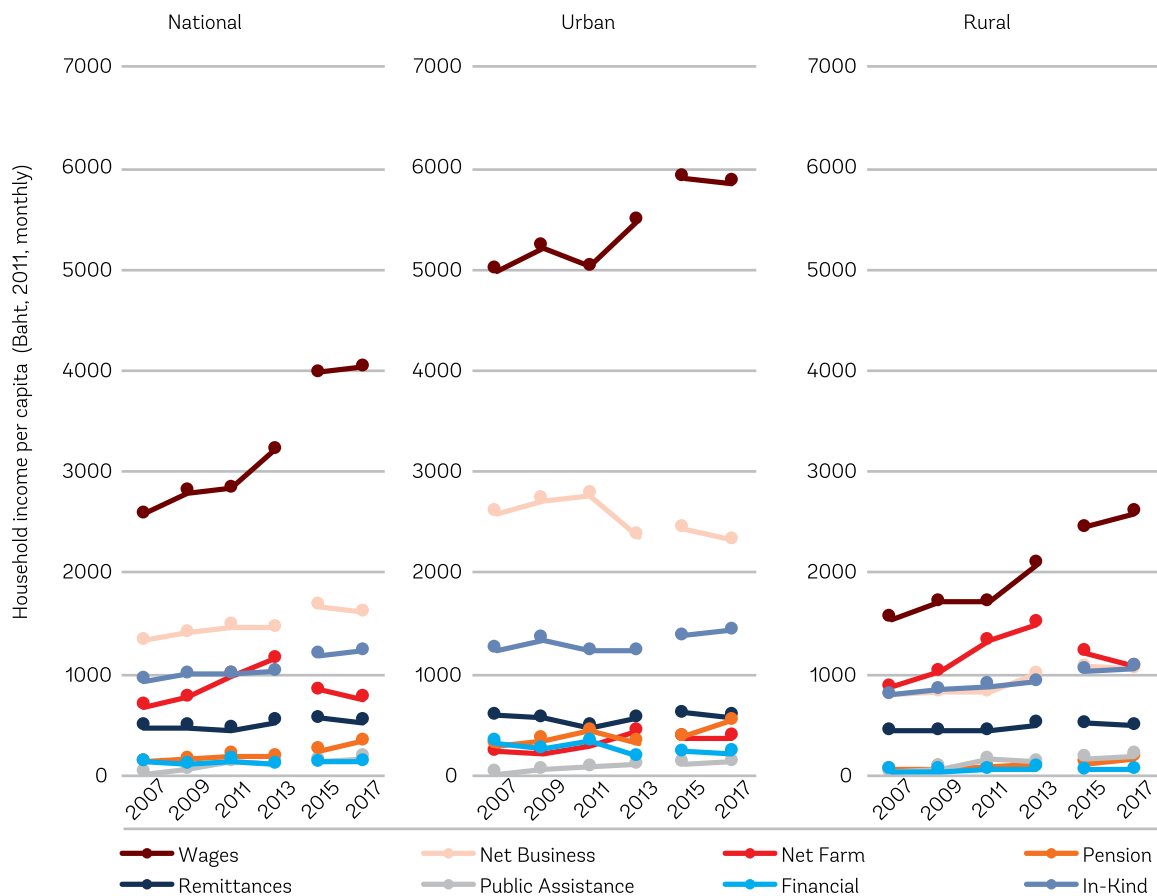
Source: World Bank staff calculations using SES.
Notes: Units are 2011 baht. Data before and after 2013/2014 are not comparable. Negative incomes are included. Urban and rural areas are as defined in the SES. In the survey, urban areas refer to the provincial capital and rural areas refer to the rest of the province.

Since 2007, wage income has grown the most in real terms, and less growth has been seen in other income sources. In the period 2007–13, wage and farm income grew considerably. In the period 2015–17, albeit a much shorter period, income changes were less dynamic. In urban areas, wages and business incomes declined over this period, and in rural areas farm incomes declined.

Stagnation in wage income is also seen in the labor force survey. Wage and salary income of the household includes income from all occupations and household members. In this sense, wages are from both formal and informal sector

employment. Based on the labor force surveys, YoY wage growth was lower during 2015–17 than previously seen in 2014 and earlier years (Figure 3.36). Q1-2018 wage growth is slightly higher. This is unlikely to be due to the minimum wage increase, since the policy was implemented in April 2018. Wage growth was high during 2011–14, and then began to drop starting in 2015. Wage growth stagnation is also seen across most occupations. The number of unemployed was also increasing during 2015–17 (Figure 3.37). However, recent data show that the number of unemployed started to decline in 2018.

Figure 3.36. YoY wage growth has been low in recent years
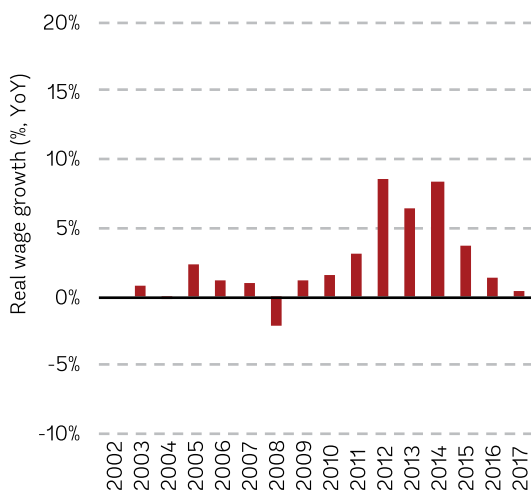
Source: World Bank staff calculations based on THA LFS.
Notes: Sample of 15-64 year olds, primary job only.

Figure 3.37. The number of unemployed was increasing in the period 2015–17
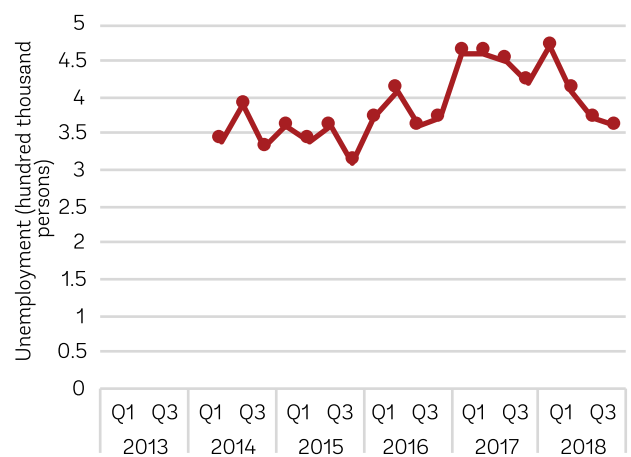
Source: NESDC.

In the period 2015–17, pension, public assistance, and in-kind incomes grew the most consistently. When examining growth of income sources across regions or deciles, these sources were the ones seen to grow the most commonly.

To understand how changes in incomes impact poverty, it is necessary to focus on changes in income at the lower end of the distribution. Figure 3.38 illustrates changes in mean household income by source, and also disaggregated by region and decile. In Thailand, the national and international poverty rate is between 7 and 8 percent. Hence, changes in income in the lowest deciles will influence changes in the poverty rate. Income sources from employment and productive labor did not experience high rates of growth during the 2015–17 period. In fact, wages, net business, and net farm incomes were negative throughout most of the distribution. An exception is public assistance income, which has increased across the majority of the distribution. By region, pension income appears to have the most positive change. Public assistance income has also grown in most regions, albeit at a lower rate.

Figure 3.38. **Annualized % change in mean household income, 2015–17, by income source**
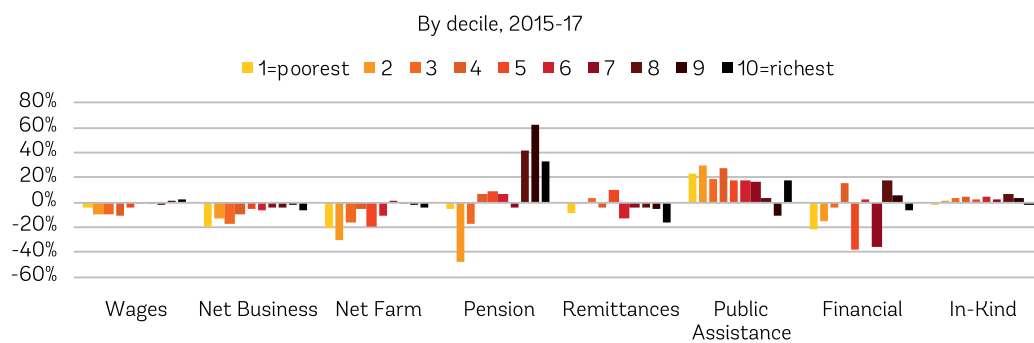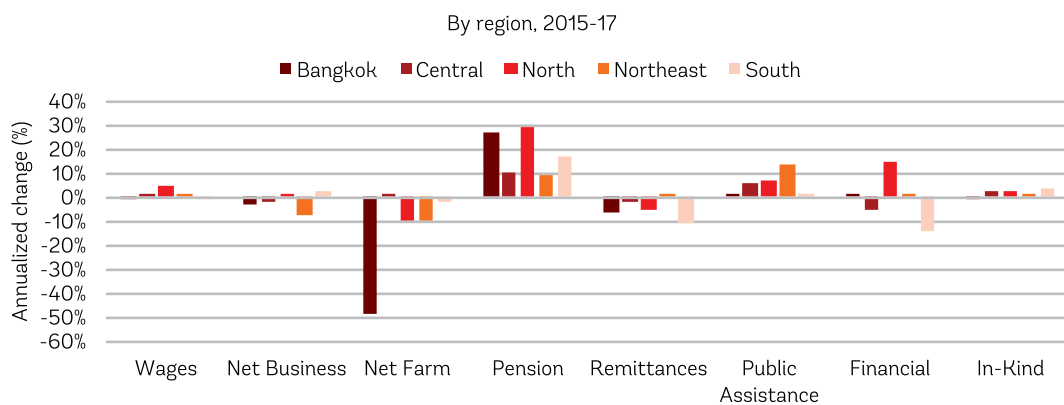
Source: World Bank staff calculations using SES.
Notes: Means include zeros. Annualized changes.

3.3 FORCES BEHIND POVERTY REDUCTION

To measure changes in poverty by sources of income, this note follows the methodology developed in Azevedo et al. (2013). Income data used for the analysis and empirical trends are also discussed in this section (see Annex C for a description of the data and methodology). While poverty increased, there is policy interest to understand what factors explained the changes in poverty, such as demographics, labor income, or non-labor income.

The change in the country-level UMIC poverty rate between 2015 and 2017 is small, less than 1 percentage point.

While it is preferred to observe changes over a longer period of time and with larger changes in poverty, as discussed earlier, the survey break between 2013 and 2014 means that changes calculated across the break are not comparable. Figure 3.39 illustrates poverty rates calculated from both household consumption and income, and based on the upper middle-income class poverty rate of US$5.5/day 2011PPP. Poverty rates calculated using consumption or income are closely aligned. Nationally in the period 2015–17, income-based poverty changed from 6.7 to 7.5 percent, while consumption-based poverty increased from 7.1 to 7.8 percent.

Figure 3.39. **Consumption and income-based poverty rates (US$5.5/day 2011PPP), 2014–18**
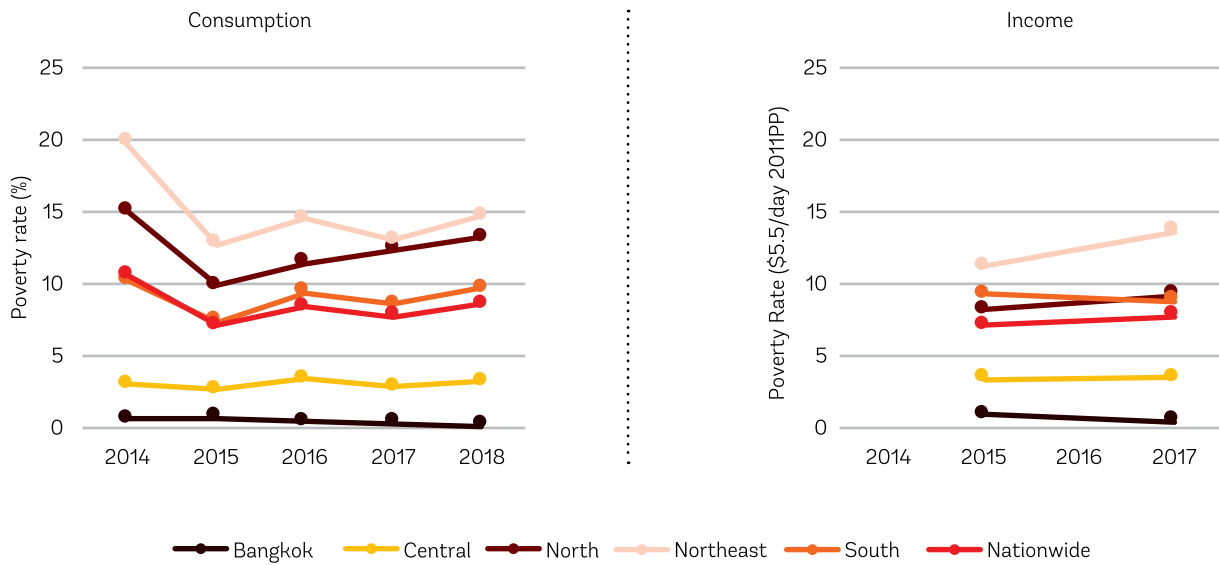
Source: World Bank staff calculations based on THA SES.
Notes: Income is collected in 2015 and 2017 only.

The increase in poverty in the period 2015–17 is small but significant. From 2014 onward, poverty trends increased and decreased year to year. Due to these frequent movements, it may be difficult to categorize the changes in poverty as short-run movements or a deeper-seated problem in declining household welfare. However, trends do suggest that the recent increase in poverty is significant. While the increase in poverty in 2016 was small and followed by a decline in 2017, the increase in 2018 was larger and more widespread. Moreover, alternative data sources also show worsening household conditions from 2016 onward that did not alleviate in 2017 or 2018.

Perceptions about living standards in Thailand worsened, coinciding with the recent increase in poverty. Starting in 2016, there was a downturn in perceptions among those surveyed in a Gallup World Poll. Perceptions worsened in some questions related to life, financial well-being, standards of living, and income. For example, starting in 2016, many more respondents began indicating that they did not have enough money for food or shelter at least once in the past year (Figure 3.40).

Figure 3.40. **Perceptions worsened starting in 2016**
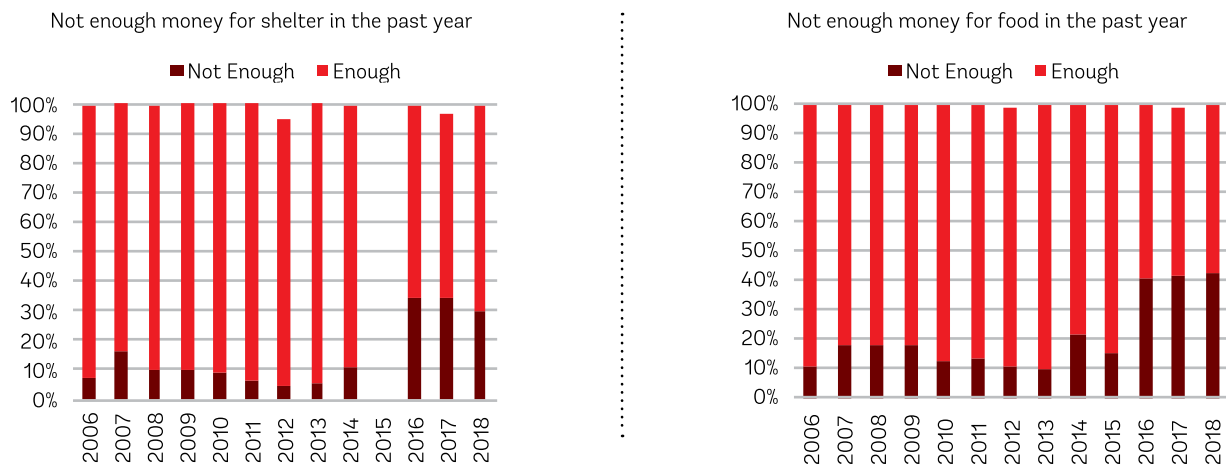
Source: World Bank staff calculations using Gallup World Polls.
Notes: The Gallup World Poll surveyed 1,000 respondents over the age of 15 every year.

The next section discusses the results of the income decomposition and findings on the contributions to changes in poverty in the period 2015–17. See Annex C for a description of the decomposition method. Decompositions of changes in poverty are calculated at the national, regional, and sectoral levels. First, the decomposition is conducted at the national level, to describe the contributions to poverty in broad terms. Second, since there are strong differences in the composition of income across regions, decompositions are also conducted separately by the location of the household. A household head's sector of employment is also an important determinant of poverty. Table A.C.20 and Table A.C.21 in the Annex lists the estimates for all Shapley decompositions, and for changes in poverty based on both income and consumption.

3.3.1 NATIONAL

Over the period 2015–17, changes in labor market income sources contributed to an increase in poverty, while public assistance income buffered the declines in market income. Figure 3.41 illustrates the sources of changes in poverty in the period 2015–17. The y-axis shows the percentage point contribution to the change in the poverty rate. When the contribution is positive, then a component contributed to an increase in poverty, and vice versa. The components on household consumption per capita are those described in Annex C in Figure A.C.73.

Figure 3.41. **Sources of changes in income-based poverty, 2015–17**

Legend:
- Share of Adults
- Share of Employed
- Wages per employed
- Business
- Farm
- Pension
- Remittance
- Assistance
- Financial, and In-Kind
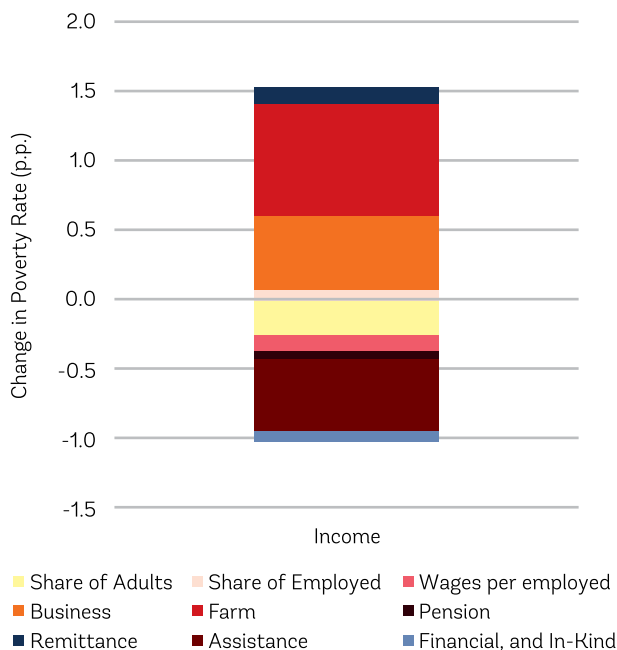
Source: World Bank staff calculations based on THA SES.
Notes: The identity for consumption is shown in Equation 5. For income, the propensity to consume is not included. See Table A.C.20 for table of values. The identity for consumption is shown in Equation 5 in Annex C. The identity for income is identical and excludes the propensity to consume.

Declines in farm and business incomes were the largest contributors to the increase in poverty. Net business and net farm incomes are one of the highest sources of income in urban and rural areas, respectively (Figure 3.35). Wage growth was negative in urban areas but positive in rural areas, thus having a small impact on poverty overall.

Some components had little explanatory power on the changes in poverty. Demographics are expected to have a minimal impact, since the analysis is over a relatively short period. The relative low impact of financial income is expected, given the low incidence of this income source, with very few households receiving this type of income. However, one component that played very little role in changes in poverty is wage income. Typically, labor income is one of the largest contributors to poverty reduction. However, in this analysis, the time period is very short.

The primary contributor to poverty reduction was public assistance income, though net poverty increased. Social spending in Thailand is a large proportion of the government budget, and also reaches many Thai households. Recent policy changes show that the Government will continue to rely on public assistance to boost incomes of lower-income households. While market income has been declining, government policies are supporting household incomes. Growth in public assistance income across the majority of the distribution raises questions as to how well these funds are targeted. Data from the household surveys show increases in income in pension and elderly/disability assistance, which is consistent with the Government's increased spending on elderly and pension schemes. The incidence of income over time shows that the percentage of households receiving public assistance income increased from 47 percent in 2015 to 53 percent in 2017. In 2017, the Government launched a cash transfer program, often referred to as the digital welfare card program. However, there were criticisms that the program was not well targeted and includes recipients that are not poor. The number of individuals who qualified for the program also exceeded the number of poor based on the national official poverty line. Spending on the elderly also increased in 2016.[16] The 2016 budget allocated B 287 billion for pension schemes, with expectations that this allocation will increase to B 698 billion by 2024.

Contributors to poverty reduction have changed from earlier periods. Before 2000, the main contribution to poverty reduction was growth. Increases in labor income drove the majority of poverty reduction as numerous off-farm jobs were being created, and the number of jobs being created requiring low education was declining. In the period 2000–13, the main driver of poverty reduction shifted and was driven by farm income.[17] In the most recent 2015–17 period, this note finds that public assistance was buffering households from falling further into poverty.

16 https://www.reuters.com/article```/thailand-economy-idUSL4N1D93O1

17 However, many of the benefits of rice price support went to richer farmers and may have negatively affected net buyers of rice (Sondergaard et al., 2016).

For comparability, a decomposition using the same consumption identity in the period 2007–13 is also conducted to compare with the 2015–17 period. Table 3.6 illustrates the sources of the change in poverty reduction for two periods, 2007–13 and 2015–17. Changes of both consumption and income-based poverty rates are shown and annualized, since the periods are different in length. Several sources of income that were once related to poverty reduction over the 2007–13 period are now related to poverty increases: wages, farm, and remittance incomes. In both periods, the increasing share of adults is poverty reducing, while the share of employed is poverty increasing. This reflects the state of demographics where the population is aging and also exiting the labor force.

Table 3.6. **Comparison of sources of poverty reduction, 2007–13 and 2015–17**

	2007–13		2015–17	
	Consumption	Income	Consumption	Income
Propensity	0.37		-0.41	
Share of adults	-0.52	-0.48	-0.09	-0.13
Share of employed	0.02	-0.01	0.16	0.04
Wages per employed	-0.49	-0.40	0.04	-0.06
Business	0.01	0.02	0.29	0.26
Farm	-0.68	-0.47	0.47	0.41
Pension	-0.05	-0.04	-0.08	-0.03
Remittance	-0.21	-0.25	0.11	0.05
Assistance	-0.34	-0.34	-0.26	-0.26
Financial and in-kind	-0.28	-0.27	-0.06	-0.04
Change per year	**-2.16**	**-2.25**	**0.17**	**0.25**

Source: World Bank staff calculations.
Notes: Annualized change per year (p.p.). Decomposition follows the identity in Annex C, Equation 5.

3.3.2 BY REGION

The composition and patterns of income vary considerably by region. Descriptive tables in earlier sections showed differences in the composition of household income, as well as household income growth by region. Since households across regions have different income-generating capacities and opportunities, this motivates the implementation of the income decomposition by location.

Despite progress and the country's level of development, some regions are lagging and less developed than others. In 2017, the UMIC poverty rate in the Northeast was 13 percent, compared with 0.3 percent in Bangkok. Higher levels of development and rates of growth are typically seen in the Bangkok and Central regions where most of the country's high-valued production in manufacturing and services are located. The North, Northeast, and South regions are poorer, less diversified, and more reliant on agriculture. These agricultural regions are also sensitive to changes in commodity prices and natural disasters, including droughts and floods.

In the period 2015–17, all regions except for Bangkok experienced a rise in poverty. The increase in poverty based on the UMIC poverty line ranged from a small increase in the Central region of 0.1 of a percentage point to a more substantial increase of 2.5 percentage points in the North region. The North region is also the only region where poverty increased consecutively in the period 2015–17, likely related to droughts that severely affected agricultural production. The share of the total number of UMIC poor from the North region increased from 24.9 percent of the total poor in 2014 to 27.0 percent in 2017. Together, the North and Northeast regions are home to almost half of Thailand's total population. The population in these regions is also aging. The increase in poverty rates in these two regions aligns with a sharp fall in the gross value of agricultural production.

The lack of poverty convergence reflects regional disparities. Regional disparities include differences in the main economic sectors and growth, productivity, and wealth. Gross product per capita in 2017 was about B 449,881 per person in the Bangkok area compared with only B 80,352 per person in the Northeast region (NESDC, 2017). Not only is the share of national GDP much smaller in the Northeast, North, and South regions, the shares have not changed much over the past 20 years (Figure 3.42). The share of GDP from the Central region has increased over time, likely due to government investments in the region including the Eastern Economic Corridor.

Figure 3.42. **GDP by region**
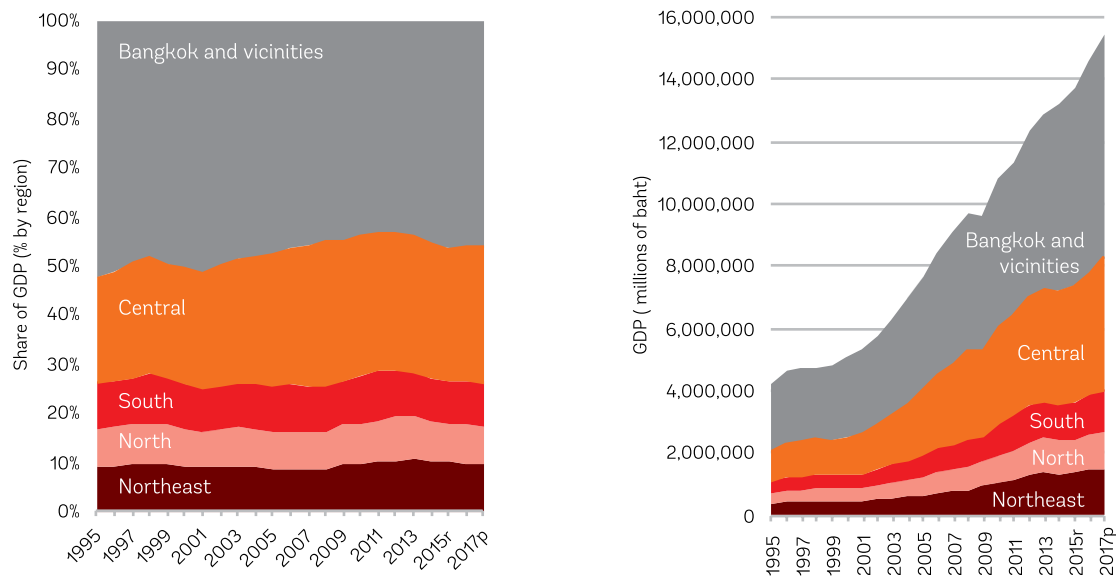
Source: World Bank staff calculations using NESDC (2017).

Household income decompositions by region reflect the differences in main income sources across regions. Figure 3.43 illustrates results of the income decomposition by region. Declines in farm income affected agricultural dependent regions the most, as expected. In the North and Northeast in particular, changes in farm income led to the largest increase in poverty. Wage growth contributed to a decline in poverty only in the South region, and this may be related to boosted rubber prices. In the Bangkok region, declining business income was the primary contributor to an increase in poverty.

In the Northeast, multiple factors had large impacts on changes in poverty. During the period of slow growth, remittance income declined and changes in remittances were also poverty increasing. In addition, all forms of labor income led to increases in poverty. Poverty reducing elements included public assistance, the share of adults, and the propensity to consume. As mentioned previously, an increase in the propensity to consume is not necessarily a positive trend, since it means that households are consuming more relative to their income levels and saving less.

Bangkok and the Central region had lower poverty rates than the other regions, and also experienced less absolute change in poverty. In fact, Bangkok was the only region to enjoy a decline in poverty in the period 2015–17. However, business and wage incomes were both poverty increasing. The Central region mirrored some patterns similar to the other regions. While the Central region is adjacent to Bangkok, it is also a large area that includes agricultural activity.

Figure 3.43. **Sources of income-based poverty reduction by region, 2015–17**
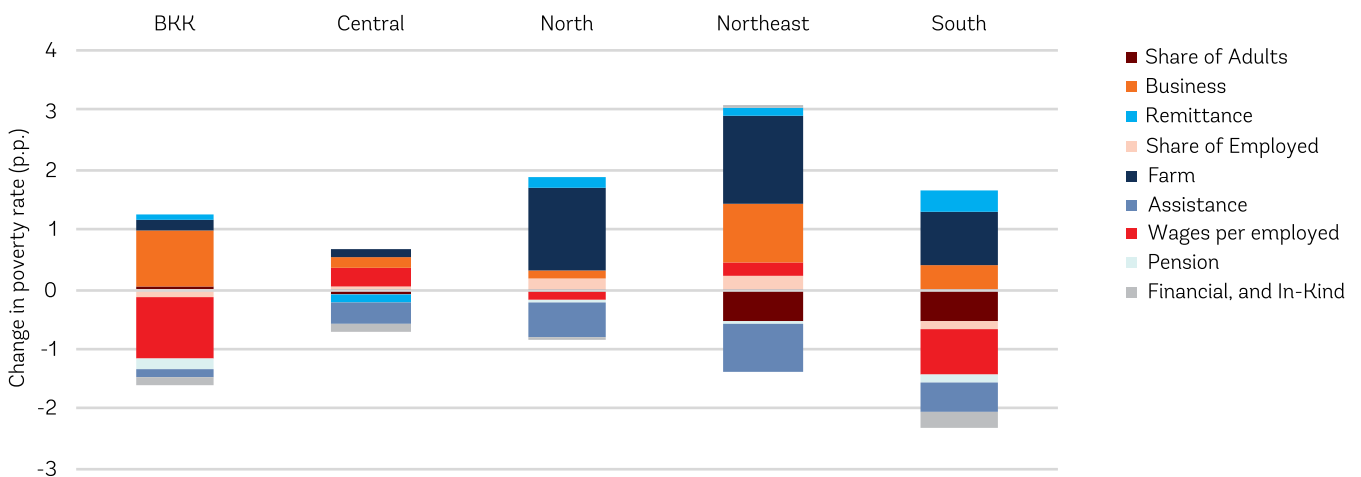
Source: World Bank staff calculations.
Notes: Positive changes means increase in income-based poverty rates.

The average household consumption-to-income ratio increased from 2015 to 2017 in four out of the five regions. (Figure 3.44). Since households smooth their consumption, they may not be fully able to alter their consumption patterns in the short run in the presence of declining income. As the consumption-to-income ratio has increased, this implies that households are possibly saving less or potentially increasing household debt. In the South region, consumption is higher than income.

Figure 3.44. **Household consumption-to-income ratio, by region**
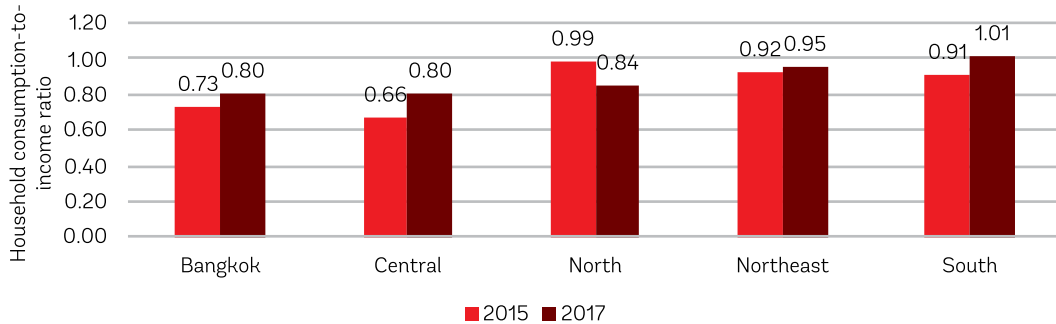
Source: World Bank staff calculations.

3.3.3 BY SECTOR

Regional differences in the sources of household income are related to variation in regional economic growth engines. Most of the country's production value in non-agricultural goods is from the Bangkok and Central regions. Production value in agriculture is highest in the South region, followed by the Northeast. These two regions experienced production declines after the end of rice guarantees, but experienced some recovery of agricultural growth. However, the North and Eastern regions have experienced a steady decline in agricultural production since 2012 and have yet to reverse this decline (Figure 3.45).

Employment in agriculture declined consistently in the period 2014–16. Since 2014, total employment levels have declined consistently, though total employment in 2018 finally

increased. Employment in the agriculture and manufacturing sectors also contracted over the 2015–17 period (Figure 3.46). Agricultural employment contracted the most in percentage terms. Moreover, employment in agriculture shrank in 11 out of 12 quarters in the 2015–17 period. The manufacturing sector experienced a decline in percent YoY employment levels consecutively from Q4-2015 to Q1-2018, largely attributable to lower vehicle production (NESDC). The services sector was supported by investment in state-owned enterprise (SOE) construction. Accommodation and food services was the only sector in which employment grew consistently during the 2014–17 period.

Figure 3.45. **Gross regional production value (ref year=2002), 1995–2016**
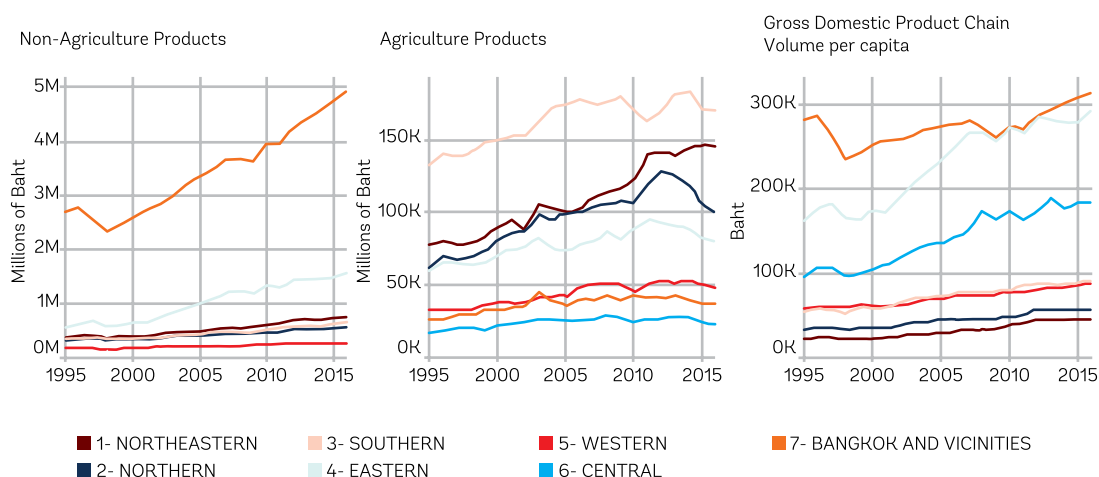
Source: NESDC.

Changes in the agriculture sector can have large impacts on poverty, since about one-third of the labor force are in this sector, and employment is generally considered to be low in productivity. In 2015/16, a severe drought left parts of the North parched and disrupted agricultural production. Commodity prices also negatively affected farmers' incomes. In 2016, the farmers' incomes declined, the agricultural price and production indices decreased.

Figure 3.46. **Total employment declined in 2014–17, and increased in 2018**

Legend:
- Employed
- -Agricultural
- -Non-Agricultural
- --Manufacturing
- --Construction
- --Wholesale and retail trade; repair of motor vehicles and motor cyles
- --Accomodation and food service activities
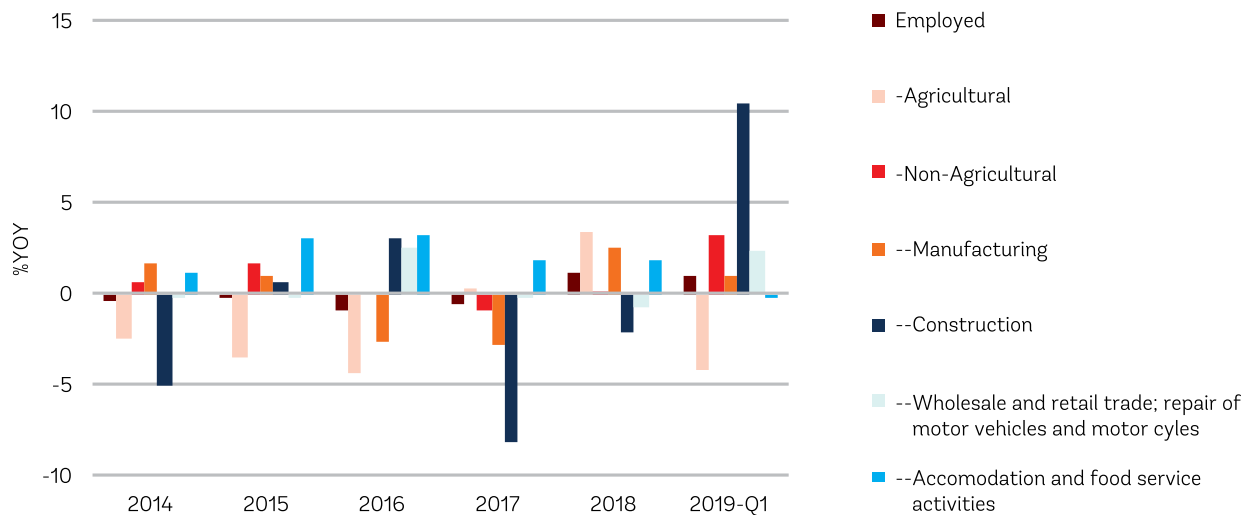
Source: NESDC.

By sector, agricultural households experienced the largest increase in poverty in the 2015–17 period. Figure 3.47 shows the sources of poverty changes by the household head's sector of employment. Households whose head is employed in the agriculture sector experienced the largest increase in poverty. This increase was due primarily to declines in farm and remittance incomes. Among manufacturing households, wages were poverty increasing, and business income was poverty increasing for households in the services sector.

However, in net, poverty among services households decreased. These results are also consistent with Ravallion-Huppi poverty decompositions, which show by sector of employment that poverty increased in the period 2015–17 for households whose head was employed in agriculture or manufacturing, while poverty for households whose head was employed in the services sector declined (Figure 3.32).

Figure 3.47. **Sources of income-based poverty reduction, by the sector of employment of the household head, 2015–17**
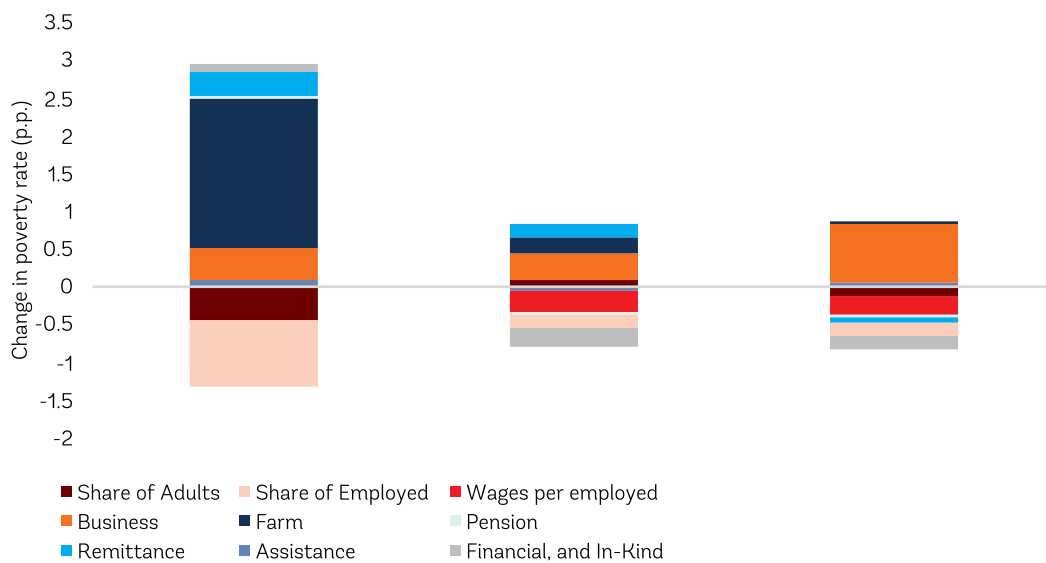
Source: WB staff calculation
Note: About one-quarter of the population live in a household where the head is not working.

3.4 CONCLUSION

Poverty by both national official and international measures increased in both 2016 and 2018. For the years that household income data are collected (2015 and 2017), an income decomposition exercise can provide insights to the sources of the change in poverty between these years.

This period was characterized by broad declines in income across difference sources and declines in income were seen across different regions. There was no one source of poverty increase and no one singular shock can be pinpointed. Overall weakness across sectors, low wage growth, and declining market incomes contributed to the overall increase in poverty.

This analysis excluded the period of the largest increase in poverty, which occurred in 2018 and was more widespread.

In 2018, some labor market indicators did not show signs of improvement, and amid the ongoing economic slowdown and global trade tensions, it is likely that household welfare did not improve. The perceptions polled by Gallup in 2018 also do not show an improvement in mood or optimism.

It is important for policymakers to take note of recent changes in the welfare trends in Thailand, since the economic climate remains challenging. A range of policies can help to reduce vulnerabilities in the short term, and sustain growth in the long term.

PART
03
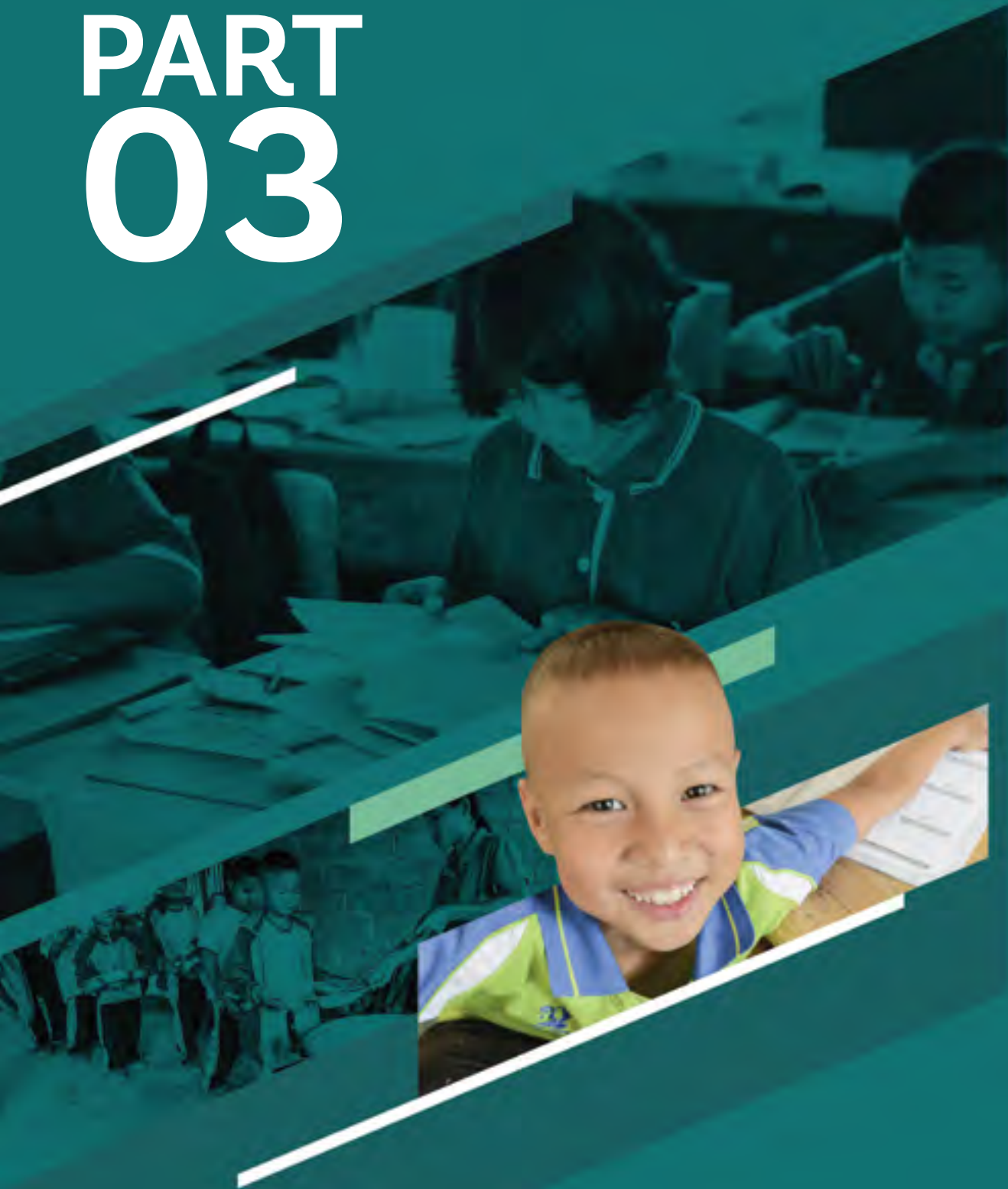
LOOKING INTO
THE FUTURE:
EQUITY IN OPPORTUNITY

CHAPTER 04.
THE HUMAN OPPORTUNITY INDEX

Looking forward, basing Thailand's growth engine on innovation and higher levels of productivity will be key, and this requires investing in the human capital of the next generation. Improving future outcomes tomorrow begins with cultivating an enabling environment for children today, which can allow them to reach their full potential. Inequalities and the lack of opportunities can create an environment in which the full potential of children cannot be realized, but also one that leads to social tensions, misallocation of human capital, and slower economic growth. When children do not have the same access to resources, the playing field is not level, and their future productivity is limited. Systematically lower education quality in rural areas compared with urban areas is an example of such an inequality in opportunity.

4.1 INTRODUCTION

The inequality experienced by children contributes to lifelong disparities in social and economic outcomes. Disparities in access to nutritional, medical, educational, and social resources can permanently impact children's future economic productivity. In addition to preventing children from reaching their full potential, high levels of inequality and limited access to social and economic opportunities can exacerbate social tensions, contribute to the misallocation of human capital, and inhibit economic growth.

Inequality in opportunity is associated with inequality that is linked to the circumstances a child is born into. Opportunities are access to basic goods, services, and infrastructure that are deemed necessary for children to realize their full potential in society. Differences in access are unfair when they are linked to circumstances that a child has no control over, or when access is granted by special privilege. When inequality manifests early in life, it is viewed as particularly discriminating, since children do not control their circumstances and cannot make choices to change them.

When opportunities are unequitable, the full potential of children cannot be realized, and their economic outcomes later in life may be limited. When the playing field is not level, children do not have an equal chance to succeed in society. For a child, the education they receive and how healthy they grow up to become affects their future wages, life expectancy, and human capital as adults. A lack of opportunities can limit their economic mobility in adulthood (Narayan et al., 2018). When opportunities are linked to circumstances, the upward mobility of an entire group of people can be limited. Globally, there is

evidence of a "Great Gatsby curve", suggesting a link between mobility and inequality. In countries with high inequality, there is less mobility in income between generations. When there is a lack of intergenerational mobility, it means that it is harder for children born into the bottom of the distribution to move up the socioeconomic ladder when they become adults. Equalizing opportunities early in life can help narrow inequality in outcomes among the next generation.

Children growing up throughout Thailand do not have equitable access to opportunities. This may be unsurprising considering the differences in economic development across regions. Children in the Northeast are the poorest and also the largest in population. Inequality in opportunities is particularly salient in education. Education quality varies across regions, and average education quality based on international test scores is lower than the ASEAN average. Some schools are under-resourced, chronically understaffed, and hindered by inadequate infrastructure and educational materials. These schools are more likely to be in poorer regions of the country where they predominantly serve the socioeconomically disadvantaged student population and are more likely to be allocated teachers with lower qualifications and teaching experience (Lathapipat and Sondergaard, 2015).

Some opportunities have near universal coverage, while others vary by geography and household wealth. Virtually all children in Thailand are enrolled in school during the compulsory school years, and there is also near universal coverage in some basic assets and infrastructure elements. But opportunities are less universal in improved water, computer/Internet, and higher levels of education. The inequality in opportunities are largely explained by the variation in geography, wealth, and parental education. Urban and rural differences reflect uneven service delivery. In the case of vulnerability, wealth and urban/rural locations explain most of the dissimilarity. This suggests an intuitive result that household resources and service delivery in a particular location impact a child's overall access to opportunities.

The following sections describe the measurement, data, and definitions related to the Human Opportunity Index (HOI). Results are discussed, including a comparison of HOI and coverage rates, and discussion of the primary sources of inequality. Additional analysis is shown on quality, bundling of opportunities, a look at the vulnerability of young adults, and analysis of changes in access to opportunities over time. Lastly, policy lessons from global experience are summarized.

4.2 THE HUMAN OPPORTUNITY INDEX

This chapter calculates the Human Opportunity Index (HOI) to measure the degree of inequality of opportunity[18] in Thailand. The HOI measures how equitable the distribution of 'opportunities' is for children aged 6-14 once adjusted for differences in access across circumstances (World Bank, 2008). An example of an opportunity is access to education. If children in urban areas have higher access to education than children in rural areas, then the geographic circumstance of a child's birth is contributing to an inequality in the opportunity of education. The dissimilarity in access to education across all groups can also be decomposed to understand which circumstances contribute to the variation in access across groups.

The HOI is an equity-adjusted indicator of access to goods and services. Policy often focuses on inequality in a society as measured by outcomes such as wages, income, or consumption. However, it is also useful to assess whether the playing field is level early in a person's life. Inequality of opportunity, as measured by the HOI, is related to concepts of fairness and that children should have a level playing field or equitable starting point.[19]

Measuring inequality of opportunity has challenges. It can be difficult to quantify the source of an inequality from luck, innate ability, effort, or circumstances in life. One assumption when studying the population of children is that their situations or opportunities can be considered exogenous. Children have limited decision-making authority, little control of their location, or the conditions of their birth. For example, a child cannot decide to move to a location with a school. Since the opportunities are at a stage of life where children cannot yet make choices and decisions for themselves, any inequality that exists is viewed as an unfair inequality.

A simple coverage rate overlooks the fact that access to opportunities may vary across groups. Suppose an opportunity is access to clean water, then the percentage of children with access to clean water, or the coverage rate, would be a natural choice for an indicator of opportunity. However, the coverage rate overlooks the fact that access to clean water is not the same across all groups, and clean water may be more common in areas where there is better infrastructure, such as in urban areas. The coverage rate is not sensitive to whether it is evenly distributed across the entire population.

The HOI is a measure that accounts for both scarcity and distribution of an opportunity. The HOI is appealing because it combines the concepts of coverage, as well as how equitable the coverage is across groups. The HOI can be thought of as an inequality-sensitive coverage rate, where the index decreases or is "penalized" based on the extent to which groups in the population with different circumstances have different coverage rates. When the coverage rate across all groups is the same, then the penalty is zero. The HOI is the coverage rate after the penalty has been deducted (see Annex E).

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18 In the literature, there are several definitions of inequality and different strategies of measurement. One way is to measure the difference in child and parental outcomes in a mobility measure. The idea being that a child's future outcomes should not be tied to their parents' circumstances, and if they are then there is inequality. A second strategy, "inequality of economic opportunity" method measures the part of inequality in income arising from circumstances that should not affect income (Bourguignon, Ferreira, and Menéndez, 2003, 2007).

19 While other child characteristics such as capabilities and innate endowments will also affect inequality, the HOI does not measure this, since these are characteristics that cannot be controlled.

4.2.1 OPPORTUNITIES

Opportunities for children are defined as access to basic goods and services in education, health, and infrastructure, which are deemed necessary for an individual to realize his/her full potential in society. Most can agree that basic opportunities should be available to all children. Basic opportunities should be affordable and outside the control of the individual. In other words, opportunities should not be expensive or limited by a person's effort or ability. Access to basic services should not be seen as a "reward".

Access is considered synonymous with opportunity. Opportunity is difficult to measure, as it is a decision to choose options to enhance one's life's potential of functioning (Sen, 1979 and 1985). Is opportunity the same if access exists but children do not use it? Access to and utilization of the service are equivalent for the purposes of calculating the HOI. If schooling is nearby but the child is not enrolled, then it is considered that the child does not have access to schooling. For basic services, society and adults must provide and ensure the child uses those services.

For a child, opportunities are exogenous. Children are at a stage in life where they cannot be held accountable for their actions. It can be difficult to quantify the source of an inequality from luck, innate ability, effort, or circumstances in life. One assumption when focusing on the population of children is that their situations or opportunities can be considered exogenous.

The opportunities used for the calculation of the HOI for Thai children are listed in Table 4.7. Opportunities are related to education and access to essential assets and infrastructure. The opportunities selected for the Thailand study are similar to indicators used in other World Bank studies conducted in the Middle East & North Africa, Latin America and Caribbean, and Sub-Saharan Africa regions (Krishnan et al., 2016; Paes de Barros et al., 2009; Dabalen et al., 2015). A child likely needs access to most or all opportunities, and a bundle is also created for analysis. Deprivations can be more acute if opportunities are bundled.

Table 4.7. **List of opportunities for HOI estimation**

Category	Opportunity	Description
Attending school		Children age window: 6-14
Completed education on time	Some Primary	Age window: 7-12
	Primary	Age window: 13-15
	Lower-Secondary	Age window: 16-18
	Upper-Secondary	Age window: 19-21
Access to infrastructure	Improved drinking water	Sources of water that are protected from outside contamination, in particular from fecal matter. Improved drinking water includes the categories 0, 1, 2, 3, 4, and 7. 0 – Bottle-water/water from vending machine 1 – Inside piped water supply 2 – Inside piped underground water 3 – Outside piped or public tap 4 – Well or underground water 5 – River, stream, etc. 6 – Rain water 7 – Treated tap water (boiled/filtered) 8 – Others
	Improved sanitation	Sanitation is improved if it is covered or if facilities are not shared. Improved sanitation includes the categories 1, 2, and 3. 0 – No facility nearby 1 – Flush latrine 2 – Squat 3 – Bath flush and squat 4 – Pit/bucket/discharge into waters/others
	Electricity	If there is electricity in the dwelling, though survey does not indicate the source such as public grid or own generator.
	Internet	This variable is asked only if the household responds that they have a home computer
Access to Assets	Mobile	A binary variable if the household owns a mobile phone
	Computer	A binary variable if the household owns a computer.

Category	Opportunity	Description
Bundled Opportunities	Not vulnerable	Opportunities can also be bundled. A child is not vulnerable if he or she has joint access to a minimum number of opportunities: school attending, on-time education completion, improved drinking water, improved sanitation, electricity, Internet, and mobile. See the section Complementarity of opportunities for analysis of bundled opportunities.

Notes: HOI analysis is calculated for children 6-14 years of age. Exceptions are the individual opportunities of on-time completion of lower-secondary and upper-secondary education.

The quality of services can be considered but this is hard to quantify. For example, if a child has access to electricity at home, it is not known if there are frequent power outages. Quality is somewhat included in the definitions of improved sanitation and water. However, education attendance cannot proxy for education quality. There has been some research on the variation in international PISA test scores and this note will summarize results from that study (see Box 4.4).

Not all opportunities that are important for children's success can be studied in this note. Opportunities can be infinite, but the report focuses on only those deemed necessary or were available from the SES dataset. Health is a commonly selected opportunity but was not included here mainly due to data limitations. In the MENA and Africa regions, many health indicators were chosen (Dabalen et al., 2015). Even though health variables were not included, child health is generally considered to be good. Thailand has been very successful at improving health and reducing stunting among children (Ariyapruchya et al., 2019).

Opportunities in education can be separated into attendance and on-time completion of particular grade levels. Table 4.8 lists the grades and expected age of enrolment in Thailand. The 6-3-3-year system was established in 1977. Primary and lower-secondary schooling are compulsory, and children enrolled are usually between 6 and 14 years of age. Pre-school and upper-secondary school options are not compulsory, and enrolment rates for these stages of education are much lower. To calculate opportunities in enrolment and completion rates, age windows are used to provide some buffer, and to take into account rounding in age. The age windows are listed in Table 4.7. For example, the on-time completion age range for primary school is 13-15.

Table 4.8. **Thailand education system**

Expected Age	Stage	Level/Grade		Notes
3	Pre-school			Pre-school education is not compulsory.
4				
5				
6	Primary	Prathom 1		Compulsory
7		Prathom 2		
8		Prathom 3		
9		Prathom 4		
10		Prathom 5		
11		Prathom 6		
12	Lower-secondary	Matthayom 1		
13		Matthayom 2		
14		Matthayom 3		
15	Upper-secondary	Matthayom 4	Vocational Certificate (3 years)	Upper-secondary is not compulsory. Students have option to attend university prep track, or vocational education.
16		Matthayom 5		
17		Matthayom 6		

Primary and lower-secondary education is compulsory. Figure 4.48 illustrates the empirical school enrolment rate, by the circumstance of gender and region. Since primary and lower-secondary education is compulsory, education enrolment for school-aged children is nearly universal. However, enrolment rates drop off at age 15, when compulsory education ends.

Girls are more likely than boys to continue with higher education. Males are more likely than females to stop their education at lower-secondary, and not be enrolled in upper-secondary education between 15 and 17 years of age. At the post-secondary level, 39 percent of girls 19-20 years of age are enrolled in post-secondary education, compared with 32.7 percent of boys in the same age group.

Figure 4.48. **School enrolment, by age and grade level**
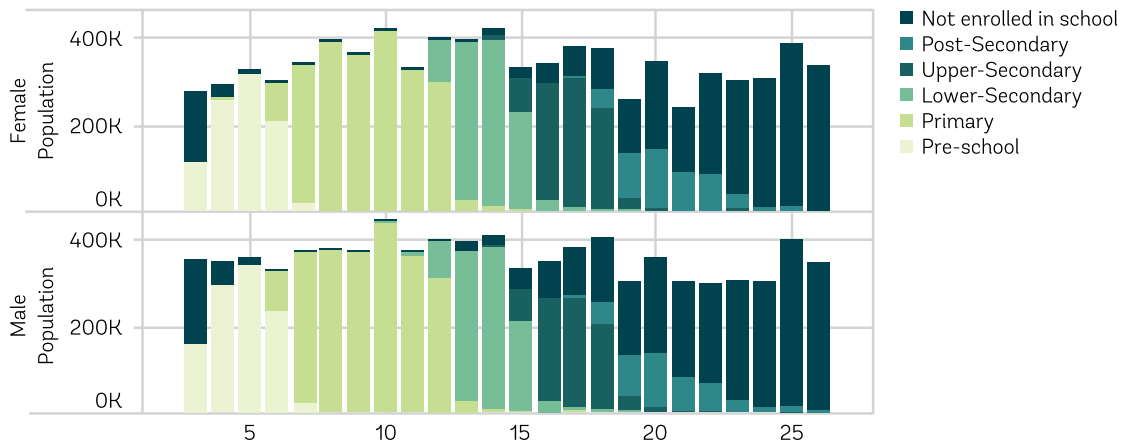
Source: World Bank staff calculations using THA SES 2017.

Among older children, there are gender differences in education completion. After compulsory education, males have lower levels of education completion. Among individuals aged 18-26 years old, 7 percent of females' highest level of education is completion of primary school, while 14.2 percent of males have completed primary school as their highest level (Figure 4.49). This finding is consistent with the previous figure showing that girls are more likely to stay enrolled in school after the compulsory years.

Figure 4.49. **School completion, by age and grade level**
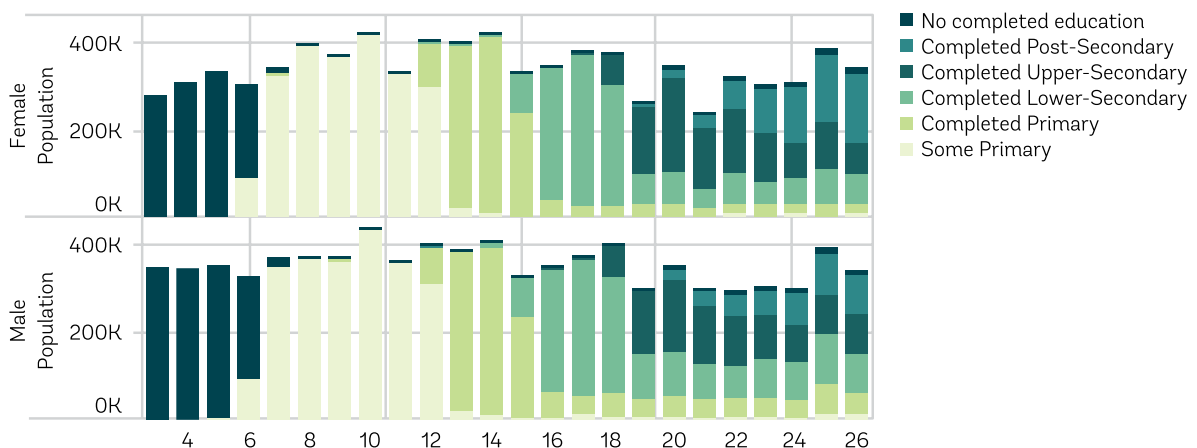
Source: World Bank staff calculations using THA SES 2017.

Children also need environments with clean water and sanitation if they are to grow up healthy and limit the spread of disease. The health risk of sanitation is related to whether or not facilities are shared or covered. Improved drinking water sources are those where water is protected from contamination. For drinking water, the majority of children use bottled water, followed by treated water and rain water.

To be productive individuals in a modern world, children need access not only to electricity, but also to the Internet. The distribution of basic assets and services is shown in Figure 4.50. While access to some assets and infrastructure is universal, access to others is not. Mobile assets and electricity are universal but home computer and Internet are rarer. Results on the coverage may be rather misleading. The question in the survey refers to Internet connection in the home, which is only answered if the responded first responds to there being a computer. The concept of access to Internet is therefore related to whether a home computer has Internet access, though in Asia many people also use Internet cafes. The Internet question can be viewed as high-quality infrastructure. The Internet use rate may be higher if considering those people who have access to social media apps, etc. For example, a recent report focusing on households in Isan (Northeastern Thailand) finds that 47 percent use social media, and 12 percent do not have access to the Internet (Lao et al., 2019).

4.2.2 CIRCUMSTANCES

In a fair society, the circumstances children are born into should not dictate the types of opportunities that they have access to. Circumstances are exogenous characteristics of children that should not influence their success in society. Children's chances in life should not be determined by where they were born or the status of their parents. Nonetheless, conditions children are born into, including the location,

wealth, and parental characteristics, often matter a great deal toward opportunities and outcomes later in life. Some circumstances reflect social barriers and discrimination, such as gender. If the circumstances of a child's upbringing, such as gender or family background, are linked to their opportunities in life, then entire groups of children could face lesser economic outcomes or upward mobility.

The circumstances selected for this study are listed in Table 4.9. The broad categories are location, household characteristics, and the child's characteristics (gender). Characteristics of the household are considered rather than the mother and father, since not all households have both parents. Moreover, many children live with relatives. There are some circumstances that may be important but are not included in the analysis. For example, citizenship is not asked in the SES. We do not take into account double disadvantages, such as being a girl and living in a rural area.

Figure 4.50. **Opportunities among the population aged 15 and under, by welfare per capita**
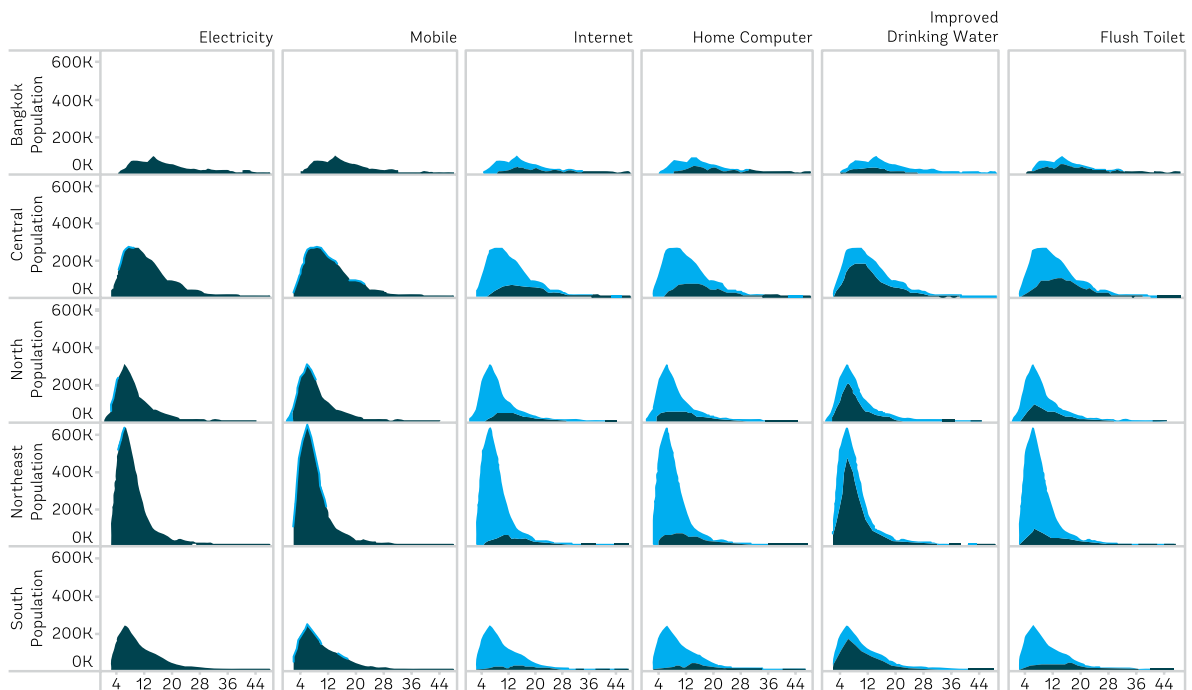
Notes: Orange= Has Access, Blue=No Access. Opportunities for the population aged 6-15 only. Consumption per capita truncated at US$50/day per person 2011PPP.

Table 4.9. **List of circumstances for HOI estimation**

Category	Circumstance	Description
Geographic	Region	There are five regions in Thailand: Bangkok, Central, North, Northeast, and South. The population of children by region is shown in Figure 4.51.
	Urban or rural	A binary variable of urban or rural location. The definition of urban and rural in the SES pertains to the provincial capital (urban), and the rest of the province (rural).
Child characteristics	Gender	A binary variable of the child's gender.
Household characteristics	Gender of head of household	A binary variable of the gender of the head of household.
	Education of head of household	Seven categories, the education completion categories of the head of household is illustrated in Figure 4.54.
	If head of household is young	A binary variable if the head of household is less than 40.
	Household consumption quintile	Five quintiles are created based on the official consumption aggregate in per capita terms provided in the SES. This is a nominal consumption aggregate. Figure 4.52 illustrate the population of children aged 6-17 by region and household per capita consumption decile.

Source: World Bank staff calculations based on THA SES.
Notes: Income is collected in 2015 and 2017 only.

Based on the 2017 SES, there is about 6.8 million children in Thailand between the ages of 6 and 14. By region, the Northeast has the most children in this age group, at almost 3 million (Figure 4.51). Bangkok has the fewest number of children, which is consistent with low fertility rates, and migrating working adults who leave their children behind with relatives in the regions.

Figure 4.51. **Population of children aged 6-14, by region and gender**
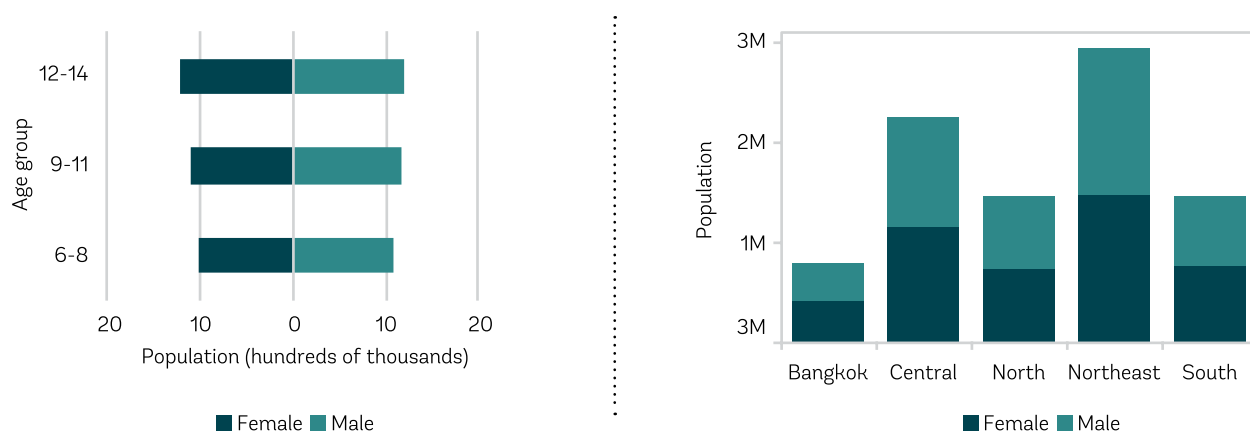
Source: World Bank staff calculations using the THA SES 2017.
Notes: Children aged 6-14.

By region, the largest number of poor children reside in the Northeast region (Figure 4.52). Based on the UMIC poverty line of US$5.5/day 2011PPP, about 396,000 children aged 6-14 reside in the Northeast. The population of UMIC poor children in the Northeast is almost half of all UMIC poor children in the country.

Figure 4.52. **Population of children aged 6-14, by poverty status (based on the UMIC poverty line, US$5.5/day 2011PP)**
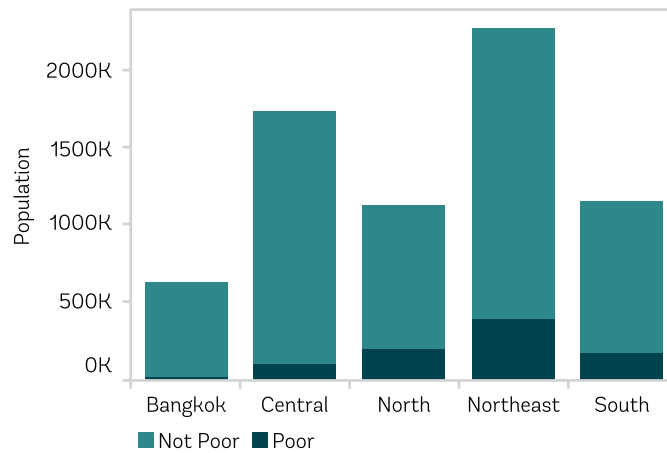
More children live in the bottom of the distribution than at the top. About 1.25 million children live in the lowest decile, compared with about 0.5 million in the top decile. Household wealth is obviously very important and is related to a child's access to goods and services. Figure 4.53 illustrates the distribution of children by region.

Figure 4.53. **Population of children aged 6-14, by decile**
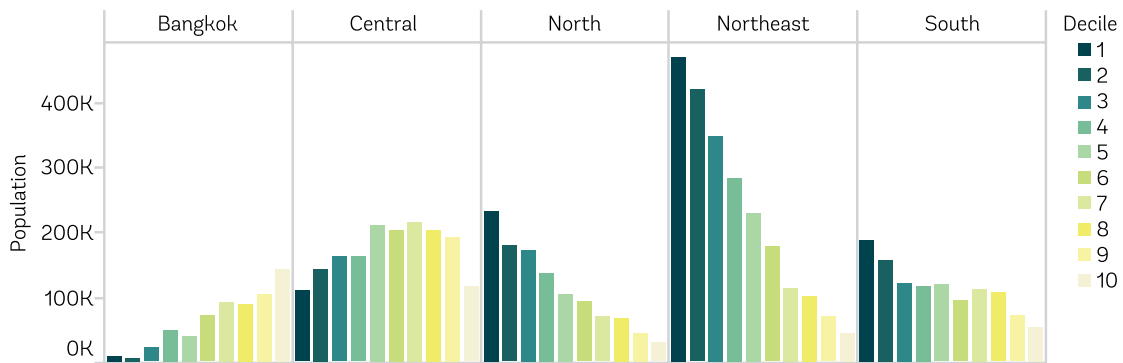
Children live in households with different education levels. Figure 4.54 illustrates the distribution of household heads with children, by their level of education completion. Among older cohorts, the level of completed education will depend on life choices and there are more factors at play in determining education achievement. Education achievement of older cohorts is much lower than for younger heads of households. This is particularly apparent among adults aged 60+, with very few having completed secondary or university education. In the Northeast and North regions, there is also some evidence of a bimodal distribution of heads of households' ages, where children are living in households with either younger or older heads. This reflects an absence of working-age adults due to rural-to-urban migration.

Figure 4.54. **Distribution of heads of households' education completion**
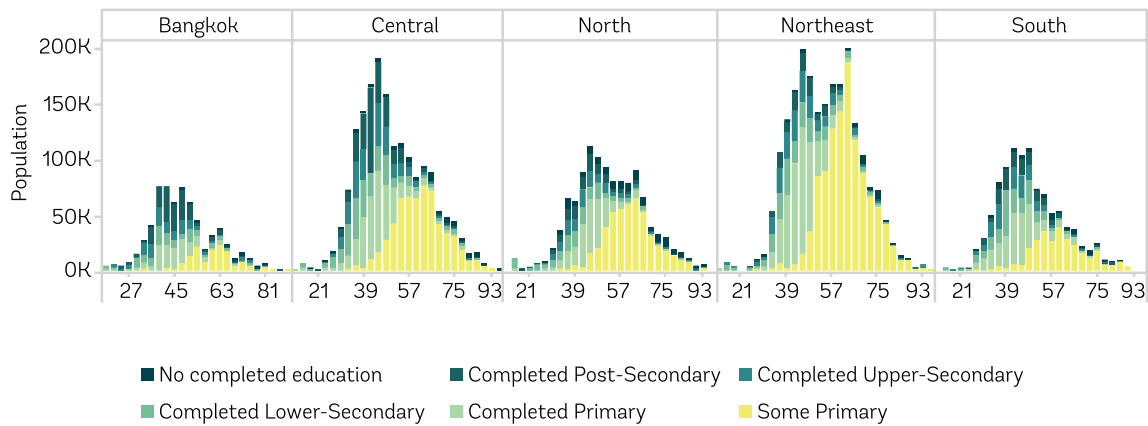
Source: World Bank staff calculations using the THA SES 2017.
Notes: Households with children 6-17 only. Household heads aged 25+. 3-year age bins.

Internal migration from rural areas to Bangkok means that some children are left behind to live with relatives. The age of the household head is included as a circumstance to partially capture the composition of the family, since many children are part of migrant rural families who live with relatives while their parents work in Bangkok. While the majority of children live with their parents, in the Northeast region about one-third live with relatives who are not their own mother or father (Figure 4.55).

Figure 4.55. **Who do children live with?**
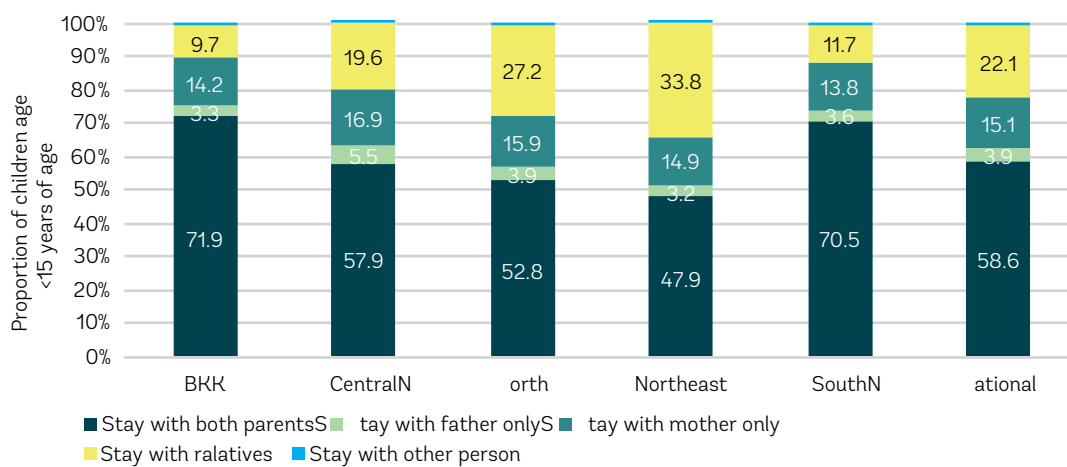
Source: World Bank staff calculations using the THA SES 2017.
Notes: Question is asked only to children <= 15 years of age.

4.3 INEQUALITY OF OPPORTUNITIES

This section discusses results of quantifying the inequality of access to goods and services for children in Thailand. These opportunities are considered essential for a child to reach his/her full potential in society. The opportunities are education enrolment, education completion, and access to basic assets and infrastructure, which were summarized in Table 4.7.

4.3.1 HOI RESULTS

The coverage rate describes the incidence in access for children aged 6-14, and the HOI adjusts the coverage rate based on inequity in the distribution across groups. The empirical distribution of opportunities was discussed in the previous section. The share of children in the population with access to a particular opportunity is also referred to as the coverage rate. The HOI can be viewed as an inequality sensitive coverage rate. It is lower than the coverage rate if there is inequity in coverage across different groups, but the HOI is never higher than the coverage rate. Comparisons of the HOI and coverage rate are shown in Figure 4.56. The opportunities are organized in three groups: education enrolment, completed education, and access to assets and infrastructure.

First, examine education enrolment. Since the population of study is 6-14 year olds, the enrolment rate is very high due to compulsory education for primary and lower-secondary grades. Though compliance is high, enrolment is not universal. Across regions, children in the South region are most likely to be not enrolled, and this is likely due to conflict in the region. At the non-compulsory education levels of pre-school and upper-secondary, enrolment does decline considerably. Early childhood education is not mandatory, but research shows that it is important for a child's development (Narayan et al., 2018).

On-time education completion is measured for children by relevant age groups. The age-window of on-time completion are based on the expected age by grade levels shown in Table 4.8. For example, primary enrolment is age 6-12, and the age-window for on-time primary completion is 13-15 years old. The on-time completion window allows for some slack in the time of completion.

Completion of compulsory education is near universal at the primary level, but not at the lower-secondary level. Though lower-secondary education is mandatory, about 10 percent of 16-18 year olds do not complete this level. Since the HOI is lower than the coverage rate, this indicates that there is some inequity in completion rate across groups. The source of the variation in lower-secondary completion will be discussed in the next section. One likely factor is gender, given that empirically the completion rate of upper-secondary for boys is lower than for girls (Figure 4.49).

On-time completion of upper-secondary education level is less common. The HOI generally does not analyze opportunities for older teens because it becomes harder to separate inequity from circumstances versus choices and effort. This is because older children can start making their own decisions in life, and it is no longer clear if differences in outcomes are unfair. Lower coverage rates in higher education levels could reflect voluntary or involuntary dropout rates, or change in access to higher education. It is worth noting that the on-time completion of upper-secondary education is much lower than for primary and lower-secondary levels. Given Thailand's aspirations to become an advanced and technologically sophisticated economy, it is unacceptable that many children terminate education at the age of 14 and at the lower-secondary level.

Figure 4.56. **Coverage and HOI, by opportunity**
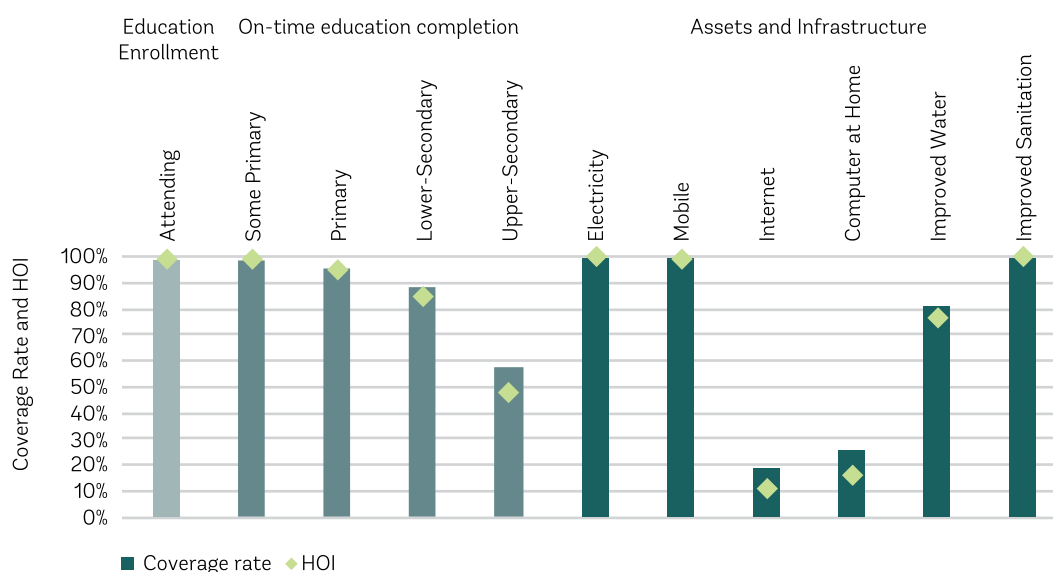
Source: World Bank staff calculations using THA SES 2017.
Notes: The population of study are children aged 6-14 years old, with exception of schooling indicators. For the definition of opportunities, see Table 4.7. For estimates, see Table 4.10 in the Annex.

In some access indicators, Thailand fares very well. Electricity, mobile phone assets, and improved sanitation are all nearly universal, meaning virtually all children aged 6-14 are living in households with these assets.

Other assets have much more limited coverage. Computer/Internet and improved water have lower coverage across the population of children, as well as more variation across groups. Access to digital technologies is important, and limited access to computers could put Thai children at a disadvantage in a modernized economy. However, it is not clear if children have access to computers in other ways such as at schools, community centers, or Internet cafes. About 6 percent of children have computers at home but no Internet connection.

Table 4.10. **HOI results, 2017**

		Coverage rate	Penalty	HOI	Dissimilarity Index
Education Enrolment	Attending	98.7%	0.5%	98.2%	0.5%
On-time education completion	Some Primary	98.7%	0.4%	98.4%	0.4%
	Primary	95.4%	1.4%	94.0%	1.5%
	Lower-Secondary	87.9%	3.8%	84.0%	4.4%
	Upper-Secondary	57.9%	10.5%	47.4%	18.1%
Assets and infrastructure	Electricity	99.8%	0.1%	99.7%	0.1%
	Mobile	99.1%	0.4%	98.7%	0.4%
	Internet	19.1%	8.8%	10.2%	46.3%
	Computer at Home	25.3%	9.8%	15.5%	38.7%
	Improved Water	81.2%	5.6%	75.6%	6.8%
	Improved Sanitation	99.6%	0.2%	99.4%	0.2%
Bundled opportunities	At least 4 out of 7 opportunities	99.7%	0.2%	99.5%	0.2%
	At least 5 out of 7 opportunities	98.4%	0.6%	97.8%	0.7%
	At least 6 out of 7 opportunities	79.6%	6.0%	73.7%	7.5%

Source: World Bank staff calculations using THA SES 2017.

4.3.2 DISSIMILARITY INDEX

The dissimilarity index captures the variation in an opportunity across different groups of children born into different circumstances. The dissimilarity is illustrated in the first panel in Figure 4.57. For some opportunities, the value of the dissimilarity index is already very low. There is a negative relationship between coverage rates and the dissimilarity index. Among opportunities that have very high coverage, or are nearly universal, there is very little dissimilarity across circumstances. Primary education, electricity, mobile phone access, and improved sanitation all have a very low dissimilarity index value. Analyzing the decomposition of the index makes the most sense for opportunities with larger dissimilarity such as Internet, computer, and water.[20]

Opportunities with the lowest coverage rate also have the highest dissimilarity index. The dissimilarity index can be interpreted as the amount of opportunities that need to be reallocated between groups to achieve equality of opportunities, or a constant coverage rate across all groups of children aged 6-14. For example, in the case of clean water, the national coverage rate is 81.2 percent, though some groups of children have higher rates and other groups have lower rates. If 7 percent of the access to clean water was reallocated to those who did not have clean water, then all groups would have coverage rates of 81.2 percent. The highest dissimilarity index is in having computers at home and Internet access.

The dissimilarity index in education is increasing by grade level. While primary and lower-secondary education is compulsory between the ages of 6 and 14, there is higher dissimilarity at the pre-school and upper-secondary levels. However, even lower-secondary level completion and enrolment is not universal despite being compulsory.

The dissimilarity index in education is increasing by grade level. While primary and lower-secondary education is compulsory between the ages of 6 and 14, there is higher dissimilarity at the pre-school and upper-secondary levels. However, even lower-secondary level completion and enrolment is not universal despite being compulsory.

20 The dissimilarity in Internet coverage is high, however, as addressed earlier, there may be issues with the way Internet access is asked in the SES. Internet access is only asked to households with a home computer.

4.3.3 DECOMPOSING THE DISSIMILARITY INDEX

What are the factors contributing to dissimilarity or inequity of a particular opportunity? This is calculated using the Shapley decomposition method (for a description of the Shapley decomposition, see Paes de Barros et al., 2009). Dissimilarity or inequity can be decomposed to understand if the underlying source of variation is geographic, related to household income, or other circumstances that a child is born into.

The decomposition of the dissimilarity index is calculated using several sets of circumstances for comparisons. Recall that the dissimilarity index can change depending on which circumstances are considered (see Box 1). The dissimilarity index will never be smaller if more circumstances are considered. First, the decomposition is conducted using only

circumstances of a child's characteristics, including his/her gender and geography. This assumes that the circumstances affecting the dissimilarity are only characteristics directly related to the child. Second, the decomposition is conducted using only circumstances related to the parents and household. Third, all circumstances are included in the decomposition. Results of the Shapley decomposition of the dissimilarity index using all circumstances are shown in the lower panel of Figure 4.57.[21] The bars represent the relative shares of each factor's contribution to the dissimilarity index.

21 Results from the Shapley decomposition using smaller sets of circumstances are shown in the annex in Figure 15.

Figure 4.57. **The dissimilarity index, and its explanatory factors**
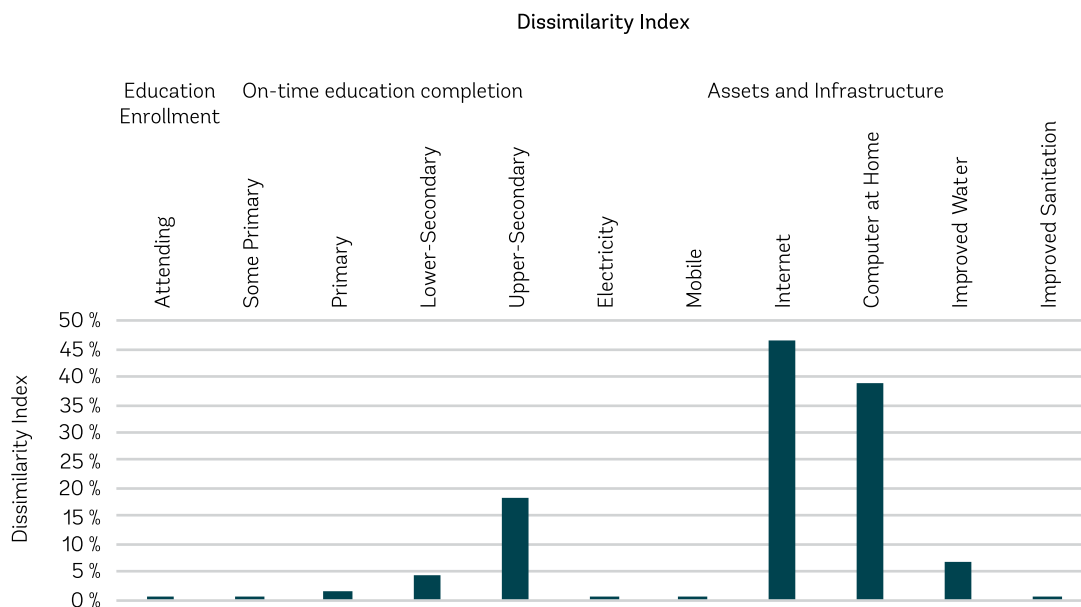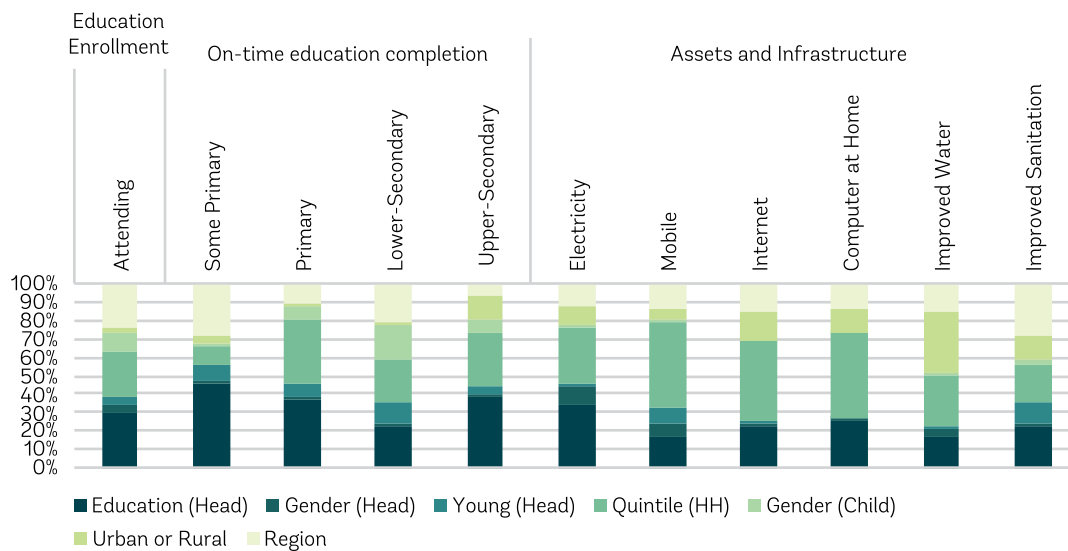
Source: World Bank staff calculations using the THA SES 2017.

For education enrolment and on-time completion, the principle explanatory factors of the dissimilarity index are wealth, household head education, and region. Education quality and outcomes vary in Thailand by region and wealth; students from rural and poorer households score worse on international tests (Figure 4.B.64). Functional literacy is lower in rural areas, which may be directly related to lower school quality. Substantial outlays would likely be needed to bring school facilities and educational materials in the disadvantaged schools up to basic standards. Results from the PISA 2015 survey of school principals suggest that small village schools serving disadvantaged children[22] are also inadequately endowed with educational materials and infrastructure. Disruption in education is disproportionately higher in the conflict-afflicted South region, where 5.6 percent of these children are not enrolled in school.

Gender plays a larger role in dissimilarity in on-time education completion at the lower-secondary level. School enrolment and education completion statistics by gender showed that boys were more likely to stop education enrolment when compulsory schooling ended (Figure 4.48 and Figure 4.49). Older girls have higher education completion: among 24-26 year olds, 43 percent of girls completed post-secondary education compared with only 26 percent of boys (Figure 4.58).

22 Advantaged (Disadvantaged) schools are those schools which are ranked in the top (bottom) 25 percent in terms of the average student body Economic, Social, and Cultural Status (ESCS) index. The PISA ESCS index was derived from the following three indices: highest occupational status of parents, highest education level of parents, and home possessions. The index of home possessions comprises all items on the indices of family wealth, cultural possessions, home educational resources, as well as books in the home.

Figure 4.58. **Education completion rates of 24-26 year olds**
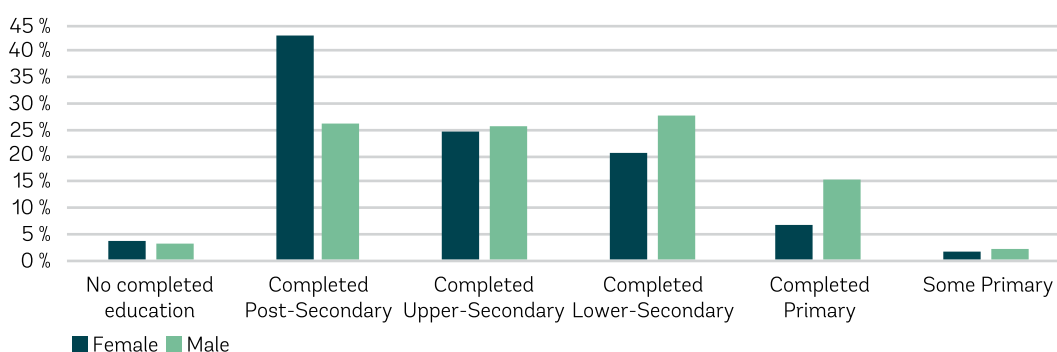
Source: World Bank staff calculations using THA SES 2017.

Wealth explains more dissimilarity in high-end assets such as Internet and computers. For example, the largest explanatory factor of differences in access to the Internet is household income, followed by the level of education of the head of household. As a country with high ambitions to achieve an advanced economy status, as well as the practical need of upgrading skills, access to technology cannot be ignored.

Service delivery varies considerably by urban and rural areas, in both education and infrastructure. Urban and rural locations explain dissimilarity in upper-secondary education completion, but not primary or lower-secondary. This suggests that geographic access is an issue. In Thailand, higher levels of education are only offered in larger cities. Among assets and infrastructure, wealth and an urban/rural location also have large explanatory power, indicating differences in access by geography.

4.3.4 COMPLEMENTARITY OF OPPORTUNITIES

Children need joint access to multiple opportunities to be able to succeed in society. Opportunities are not substitutes for one another but are complements. The previous section focused on understanding the coverage and inequality in variation of opportunities taken one at a time. This section constructs a minimum bundle of the individual opportunities described in previous sections.

It is possible to define an opportunity as a minimum bundle of goods and services. Choosing overlapping deprivations may involve some subjective choice of what is included in the bundle. The indicators should be as different from each other as possible to create a combination, as opposed to interrelated goods and services. From Table 4.7, seven opportunities were chosen for the bundle. These include school enrolment, on-time education completion, access to water, sanitation, electricity, mobile phone, and the Internet. Since Internet and computer access questions are asked in tandem in the questionnaire, only Internet access is used. This bundle represents the minimum complementary opportunities that children need with consideration to data availability. The weighting of different indicators is also another consideration that can be somewhat arbitrary. All indicators have equal weight. This weight approach does not impose a hierarchy of importance, which seems to be the most intuitive approach.

Virtually all children aged 6-14 have access to at least four out of the seven opportunities in the bundle. There is strong regional variation in the proportion of children with joint access to a particular number of opportunities (Figure 4.59). The Northeast region has the smallest share of children with access to all seven opportunities in the bundle. About half of children in Bangkok have access to all seven opportunities, compared with 10 percent of children in the Northeast. Moreover, all children in Bangkok have access to at least four opportunities. The North is the only region where some children have access to only two opportunities**.**

As a definition, a child is not vulnerable if he or she has access to at least a minimum number of opportunities. To determine the threshold for vulnerability, thresholds are tested to select the best definition. The primary consideration is the number of children with joint access to four, five, six, and seven opportunities. There is an almost 20-percentage-point difference in coverage rate between choosing five or six as a minimum number of opportunities. Virtually the entire population of children have access to at least five out of the seven opportunities, so this threshold may be too low for vulnerability (Figure 4.59). On the other hand, fewer than one in five children have access to all seven opportunities, so this threshold may be too severe. Based on this empirical distribution, six appears to be a reasonable number to use as a cut-off for vulnerability. Part of this definition is arbitrary, but also because it creates a differentiator without being too strict.

Figure 4.59. **Number of opportunities with joint access among children aged 6-14, by region**
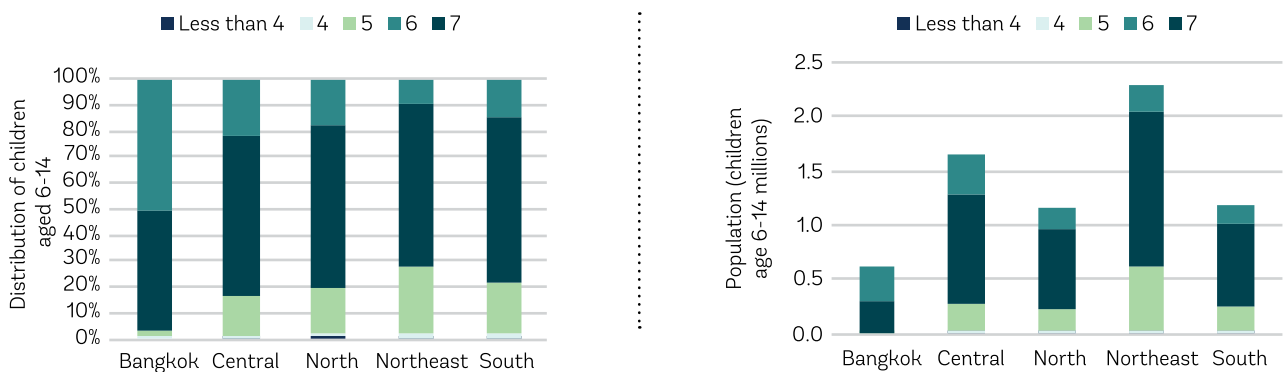
Source: World Bank staff calculations using THA SES 2017.
Notes: Children aged 6-14. There is a total of seven opportunities considered in the bundle: school enrolment, on-time education completion, access to water, sanitation, electricity, mobile, and internet.

A child is not vulnerable if he or she has access to at least six out of seven opportunities. About four out of five Thai children have access to at least six of the specified opportunities (Figure 4.60). The HOI, or the inequality adjusted coverage rate, is 73.7 percent, indicating that there is inequity in the distribution of vulnerability by circumstances. The dissimilarity index for the vulnerability index is a little higher than for the improved water indicator, and lower than the dissimilarity index for on-time completion of upper-secondary education (Figure 4.57).

Figure 4.60. **Inequality of opportunity of vulnerability**
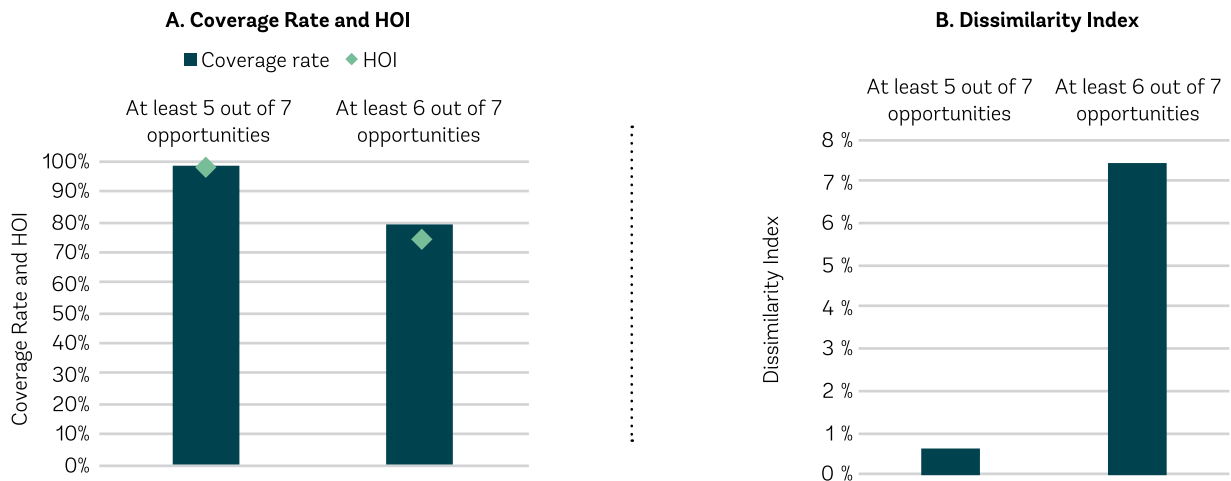
Source: World Bank staff calculations using the THA SES 2017.

Wealth is one of the largest explanatory factors of whether or not a child is vulnerable. In the case that vulnerability is defined by having less than six opportunities, wealth and urban/rural locations explain most of the dissimilarity. This suggests an intuitive result that available resources of the household and available services in a particular location impacts a child's overall access to opportunities. The largest explanatory factors are correlated, for example the likelihood of household heads with high levels of education (Figure 4.54) and household wealth (Figure 4.52, Figure 4.53) are correlated at least by region.

Figure 4.61. **The dissimilarity index of vulnerability, and its explanatory factors**
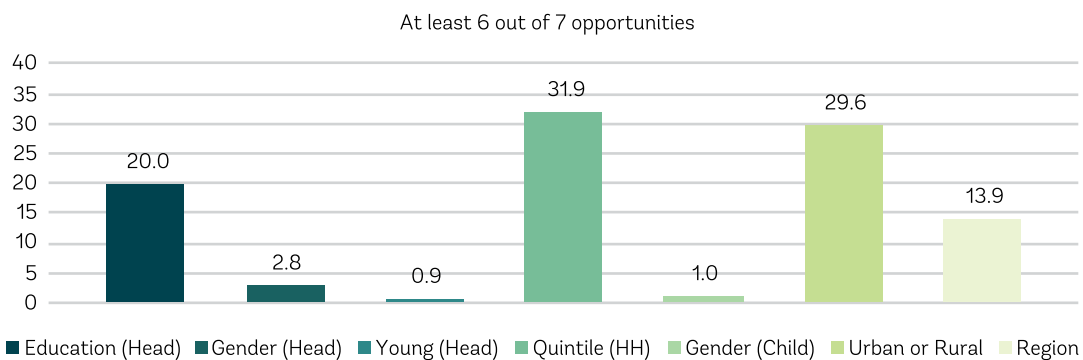
Source: World Bank staff calculations using the THA SES 2017.

Young adults have joint access to fewer opportunities than children.[23] Due to the declining school enrolment and completion rates after compulsory education, young adults are accessing fewer opportunities than children (Figure 4.62). Vulnerabilities, in the sense of a declining number of opportunities is evident in older age groups, mainly driven by declining school enrolment and on-time education completion.

23 This note does not focus on the population of young adults, though it is important to introduce some basic trends for this group. Understanding the challenges facing young adults is an important area for more research.

Figure 4.62. Distribution of the number of opportunities with joint access, by age
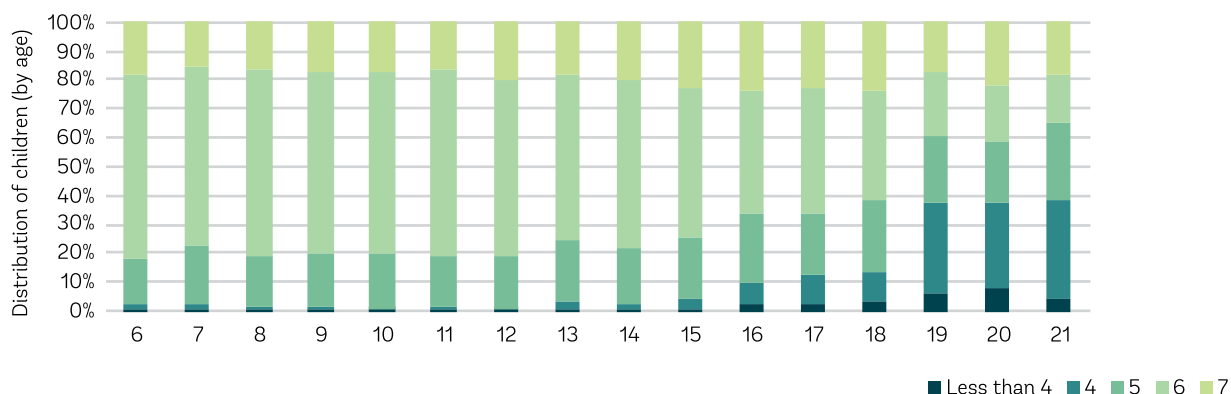
Vulnerabilities do not end in childhood. Many young adults are not meeting the minimum bundle requirement (Figure 4.63). While the HOI is typically measured for the child population, examining young adults is also important, since they are still accumulating human capital, especially in a modern world.

Figure 4.63. Number of opportunities with joint access among young adults aged 15-21, by region
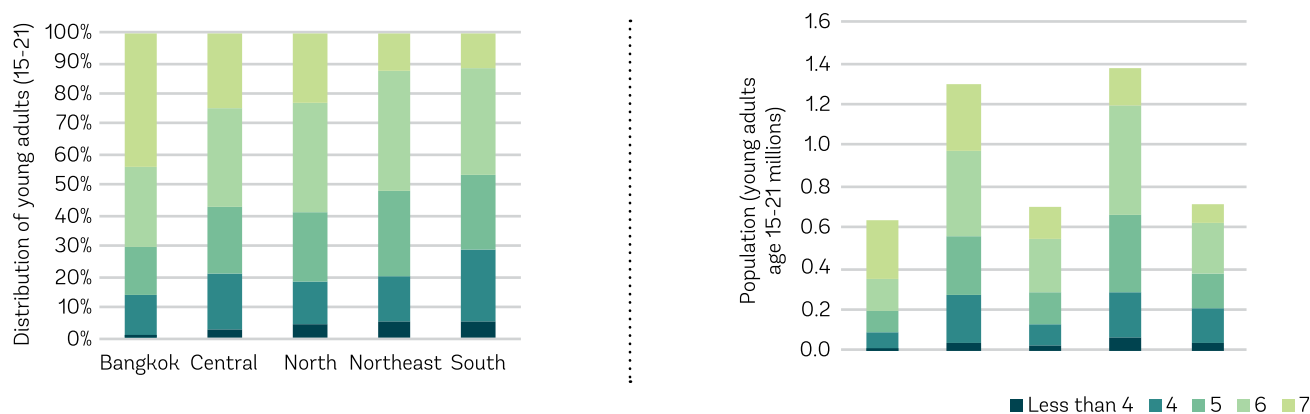
An individual's circumstances at birth interact with policies, markets and institutions to shape opportunities at various stages of life. These interactions can have long-lasting impacts and influence an individual's education and earnings. For example, parental education and incomes influence investments in children's human capital that will in turn affect their incomes later in life. Parental status can also exert a direct influence on adult incomes, through networks and connections in labor and other factor markets. Other circumstances, such as geographic location, gender, and race can affect the earnings of the next generation through a similar combination of direct and indirect pathways.

Among young adults, circumstances can account for a sizeable amount of inequality in labor market outcomes. In the labor market, characteristics such as age, experience, and education are expected to affect labor market outcomes and earnings. However, other circumstances such as the region a child was born in, their gender, or the status of their parents arguably should not. A study among MENA countries showed that circumstances can explain has much as 90 percent of total inequality in full-time employment in Egypt (Krishnan et al., 2016).

For services to be considered an opportunity, they should also meet a minimal level of quality. A household can be connected to the electricity grid but experience outages. The quality dimension of education is not well captured in a simple coverage rate of education enrolment. Education quality is an important policy agenda in Thailand, where research has shown rural areas to have much lower education quality than urban areas.

One way to account for education quality is studying standardized international test scores. The Program for International Student Assessment (PISA) reflects student learning and achievements. In Thailand, differences in urban and rural PISA scores have been widening. Although learning outcome inequality in Thailand is not particularly high by global standards (OECD, 2018),[24] the latest two PISA assessments indicate that inequality has been heading in the wrong direction. The learning gaps observed in PISA 2015 across various measures have widened substantially from those seen in PISA 2012 (Figure 4.B.64). For example, in science, the difference between students in the top and bottom socioeconomic quintile increased from 1.6 to 1.8 years of schooling,[25] while the gap between large city schools and village schools has widened significantly from 1.1 to 1.8 years.[26]   A similar conclusion is reached when analysis is carried out using mathematics or reading assessment results.

Figure 4.B.64. **PISA score by area**
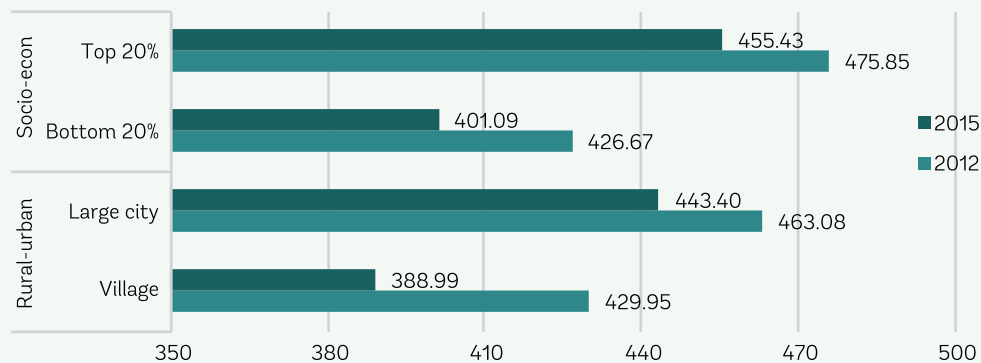
Source: OECD PISA 2012 and 2015.
Notes: Science PISA score.

Cross-country comparisons are best done under the scenario that the same definitions are used for both circumstances and opportunities. This section summarizes analysis conducted on the variation in PISA scores across Asian countries. Comparing Thailand's PISA scores with other countries in Asia shows that Thailand's scores are much lower than high-income countries in the region, though slightly higher than Malaysia and Indonesia. There is also variation in PISA scores within Thailand.

Inequality of opportunity analysis for math competency is shown below. Results for reading and science competency are shown in the Annex. In both high income and developing East Asian economies, there is some inequity in competency, meaning to some degree children's competency in math is related to their circumstances. However, the gap between the coverage rate and HOI in math competency is larger for Thailand, Malaysia, and Indonesia (Figure 4.B.65).

24 See OECD (2018): "PISA 2015 Results in Focus," page 8 for an alternative definition of inequality.

25 The socioeconomic quintiles are constructed from the PISA index of economic, social, and cultural status (ESCS). The ESCS index was derived from the following three indices: highest occupational status of parents, highest education level of parents, and home possessions. The index of home possessions comprises all items on the indices of family wealth, cultural possessions, home educational resources, as well as books in the home.

26 OECD PISA defines a village as a community with less than 3,000 people; a small town has 3,000 to 15,000 people; a town has 15,001 to 100,000 people; a city has 100,001 to 1,000,000 people; and a large city has over 1,000,000 people.

Figure 4.B.65. **Basic competency in math scores, HOI and coverage rates**

● Basic skills in math: Percentage of students that demonstrate the basic competencies in math (percentage of students above level 2 in math according to OECD)
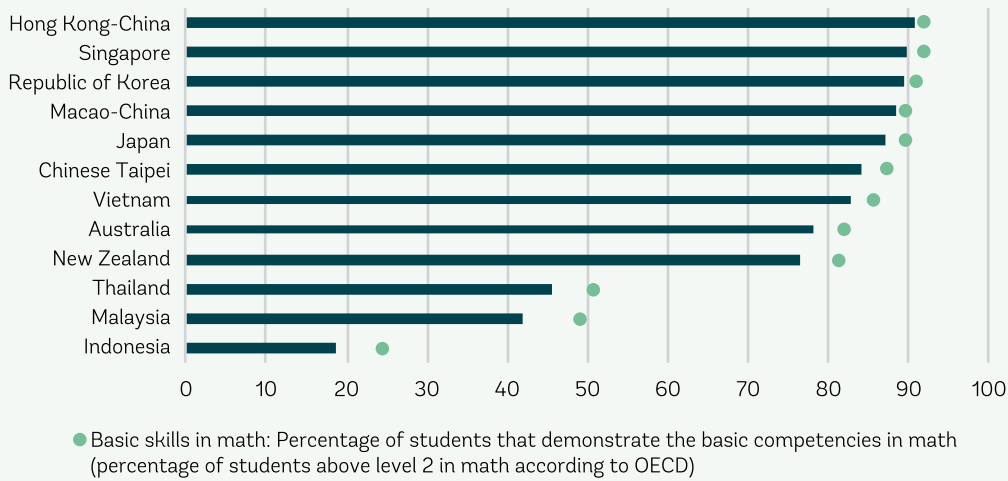
In these countries, city size also plays a larger role in explaining the source of dissimilarity in math competency, suggesting that differences in resource allocation and education quality between rural and urban areas also affect education outcomes (Figure 4.B.66).

Figure 4.B.66. **Shapley decomposition of the dissimilarity in basic math scores**

■ Wealth
■ Presence of parents
■ Preschool
■ Immigration status
■ Gender
■ Education of hh head
■ City size
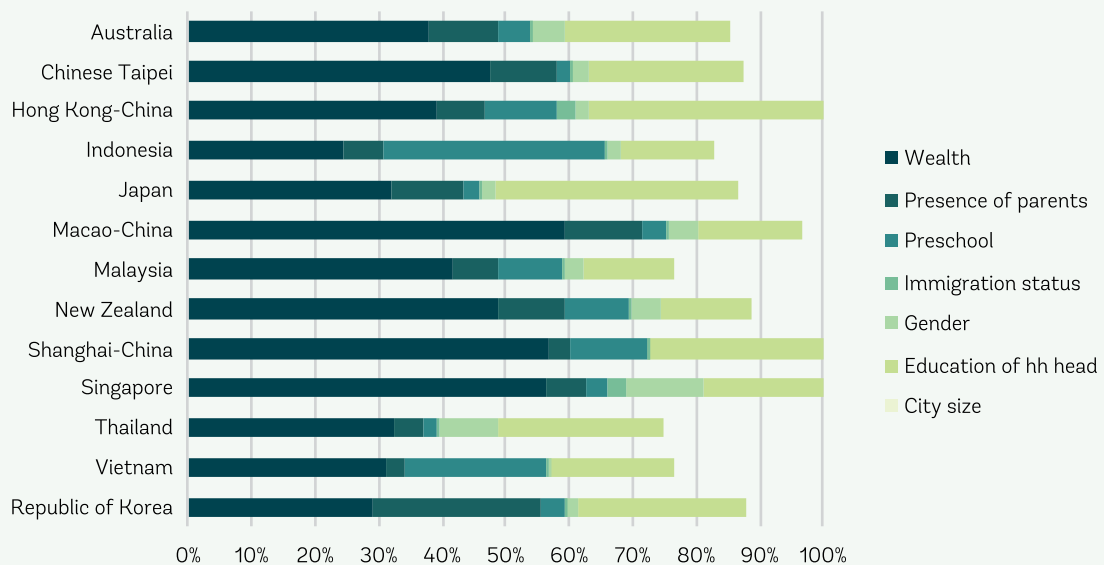
Source: Inequality of opportunity in PISA scores can be found on the World Bank's Visualize Inequality dashboard: http://www1.worldbank.org/poverty/visualizeinequality/pisa/ine_hoi.html

4.3.5 ASSESSING PROGRESS - CHANGES IN COVERAGE RATES OVER TIME

Comparing coverage rates and HOI over time informs how even progress has been in improving access to basic services and infrastructure. The lowest coverage across indicators in 2007 is improved water in the Northeast region; only one-quarter of children aged 6-14 had access to improved water. In 2017, this indicator still had the lowest coverage rate. Figure 4.67 illustrates the coverage rates of these indicators in 2007 and 2017, by geographic regions.

The change in coverage rates across time can be decomposed into three effects. First, scale accounts for the degree of a proportional change in coverage across all groups of a particular good or service. Second, equalization represents the changes in the distribution of access. Composition reflects changes in the relative importance of different groups in society (i.e., demographic changes).

This section examines indicators where there is at least half of a percentage point change in coverage rate between 2007 and 2017. School enrolment and access to electricity are not analyzed since both had near universal coverage rates in 2007 and there is a less than half of a percentage point change in coverage rates between 2007 and 2017. Internet is not included because of questionnaire changes. Improvements in the HOI

were largest for improved water and mobile phone coverage. Improvements in mobile phone coverage yielded almost universal coverage in 2017. However, there was still variation in access to improved water in 2017.

Increase in overall access (scale effect) was the largest explanatory factor for the improvement in the coverage rate for all indicators. The coverage rate of mobile phones increased from 76 percent in 2007 to 98.7 percent in 2017. Over half of the change in the coverage rate was explained by the scale effect (Table 4.11). These results suggest that large improvements in infrastructure occurred over the past decade that benefit households throughout the entire country.

Table 4.11. **Changes over time and decompositions**

		Access to Mobile	Improved Sanitation	Improved Water	Not Vulnerable (at least 6)
2007	Coverage (C)	76.13	97.55	45.14	45.61
	Dissimilarity (D)	7.26	0.75	15.90	17.78
	Human Opportunity Index (HOI)	82.10	98.28	53.67	55.47
2017	Coverage (C)	98.74	99.43	75.73	73.73
	Dissimilarity (D)	0.37	0.21	6.71	7.38
	Human Opportunity Index (HOI)	99.11	99.64	81.18	79.60
Decomposition of the Coverage rate (p.p.)	**Change in the coverage rate (p.p.)**	**22.61**	**1.88**	**30.59**	**28.12**
	Composition (p.p.)	3.56	0.70	5.37	6.89
	Equalization (p.p.)	6.05	0.35	7.28	6.76
	Scale (p.p.)	13.00	0.83	17.94	14.46
Decomposition of the Coverage rate (%)	Composition (%)	15.8%	37.2%	17.6%	24.5%
	Equalization (%)	26.8%	18.9%	23.8%	24.0%
	Scale (%)	57.5%	43.9%	58.6%	51.4%

Source: World Bank staff calculations.
Notes: Opportunities are excluded if there was less than half a percentage point change in the coverage rate between 2007 and 2017.

The impact of scale may be a result of survey changes. A survey break between 2013 and 2014 results in an increase in the urban share of the population, which typically has better access to public services. However, there are also real improvements in service delivery over time. Figure 4.67 shows large improvements in coverage rates when disaggregated by region and urban/rural. Decompostion of changes in the coverage rate by region also shows that scale is the main source of the improvement.

Figure 4.67. **Coverage rates, 2007 vs 2017**
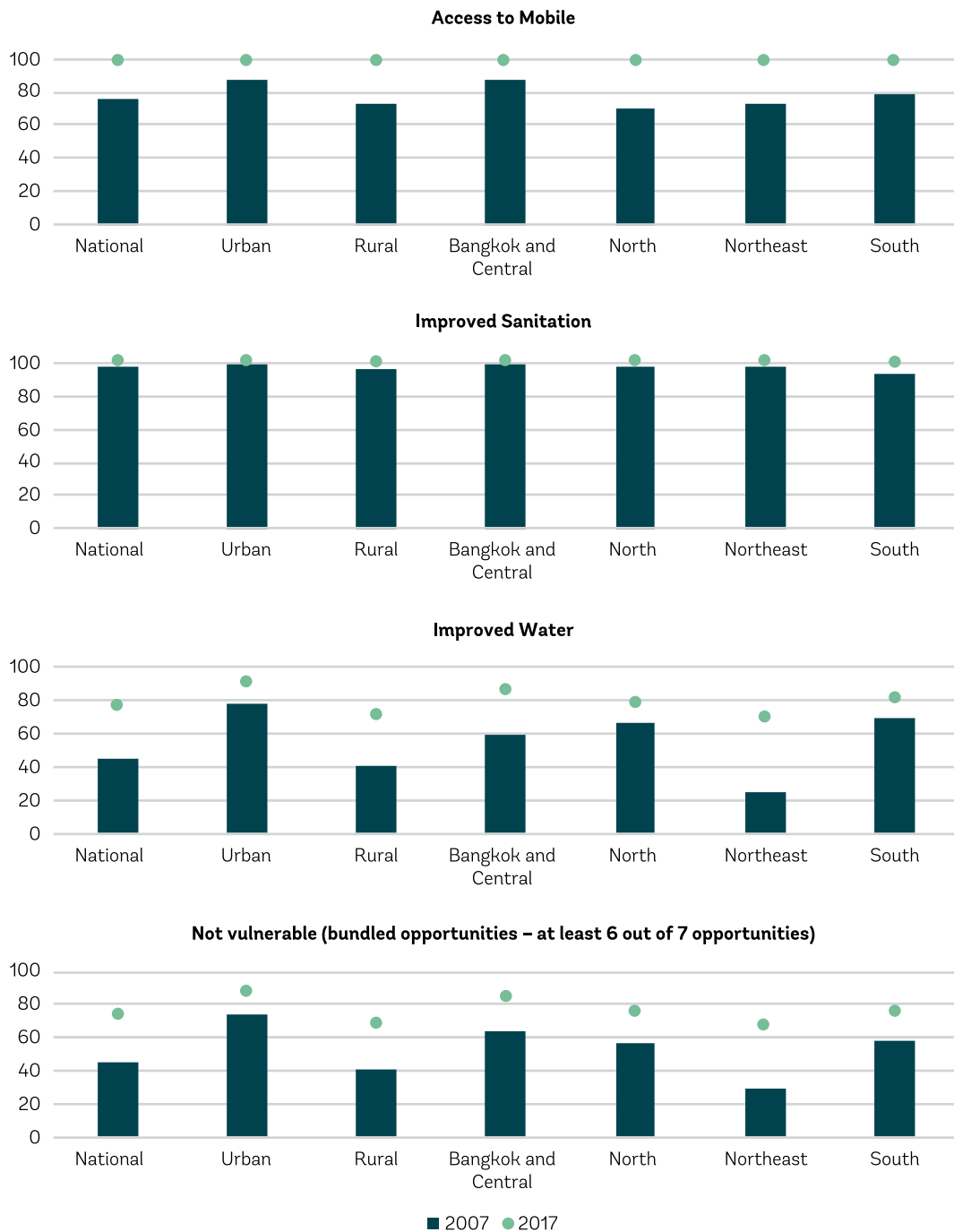
Source: World Bank staff calculations.
Notes: Population aged 6-14 years old. Bangkok and Central are grouped due to low child population in 2007.

4.4 EQUALIZE OPPORTUNITIES TO PROMOTE EQUITABLE OUTCOMES [27]

Government and society have a role to play in leveling the playing field so that Thai children can grow up with equal access to opportunities. This section reviews some policy recommendations and lessons from the global literature to break the cycle of inequality. If the circumstances of a child's upbringing are linked to their opportunities in life, then entire groups of children are not realizing their full potential.

Equalizing opportunities in early childhood

Children in Thailand are growing up healthy. Health indicators for Thai children were not included in this study, though they are generally good. For instance, Thailand has low stunting rates and good nutrition. Interventions at early stages of life can seek to influence behaviors and decisions of households in ways that lead to improvements in children's long-term outcomes that matter for mobility. Improving the early life environment is critical because gaps that emerge early in life are difficult to offset through interventions later in life.

In Thailand, pre-school is not compulsory, though early childhood education can have long-term benefits for childhood development. Programs targeting nutritional and health improvements in early childhood can yield long-term benefits in education outcomes and wages. Nutritional supplements seem to have the strongest effects when they are given to children of age 2 years or less (Hoddinott et al., 2008, 2013; Bharadwaj et al., 2013). Universal pre-school programs can play an important equalizing role. Reviews of the evidence indicate that intervening during pre-school years is more effective than later interventions, and only programs that start before children reach the age of 3 years seem to have long-lasting effects on cognitive abilities (Heckman et al., 2013). Interventions need to focus on developing non-cognitive skills as well. Intensive pre-school programs in the United States are found to have large long-term effects also because they improved non-cognitive skills among children, starting

around age 3 (Heckman and Kautz, 2014). An influential study in a developing country finds that interventions to improve children's socio-emotional skills during the first three years of life can have a positive and significant impact on labor earnings in adulthood (Gertler et al., 2014). There are large gaps in the coverage of pre-school programs in EAP, particularly between rich and poor families. In Cambodia, for example, there is a 31-percentage-point gap in access to pre-school between households in the poorest and richest income quintiles (World Bank, 2018c).

Reducing opportunity gaps in education – access and quality

Differences in education quality are an example of an inequality in opportunity. Inequalities and the lack of opportunities can create an environment in which not only the full potential of children cannot be realized, but one that also leads to social tensions, misallocation of human capital, and slower economic growth. For example, disruptions in education are higher in the conflict-affected South region, where the rate of children not enrolled in school is higher than in other regions.

The global evidence underscores the importance of focusing locally—from the level of provinces down to the neighborhoods—for improving mobility and reducing inequality. Across the world, economies with lower levels of spatial segregation (or geographic concentration) by education levels are also likely to achieve higher levels of education in an equitable manner that is unconstrained by the circumstances of their birth. The same pattern is seen across provinces within six large developing countries, including China and Indonesia (Narayan et al., 2018; Narayan and Yang, 2018). In economies (or provinces) with lower levels of segregation, children from disadvantaged backgrounds plausibly get as many chances to share the same public services as children from richer backgrounds and also benefit from positive spillovers.

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27 This section includes excerpts from Narayan and Yang (2018).

Investments to reduce inequality of opportunities

Equalizing opportunities requires public policies and investments that compensate for the gap in private investments between children of privileged and underprivileged parents. Across the world, higher public spending (on education or in aggregate) relative to the size of the economy—an imperfect but useful proxy for such investments—is found to be associated with higher relative mobility in education, after controlling for a country's level of development.[28] Globally, as well as for EAP countries, public spending on education increases with income levels and relative mobility tends to be higher in countries with higher spending as a share of GDP. The evidence thus suggests that richer countries tend to have higher relative mobility in education, on average, because they tend to invest more (relative to the size of their economy) in human capital development to equalize opportunities.[29]

Labor markets

To set children up for success as adults, equalizing opportunities in childhood is just the first of many considerations. Children will also face inequality in higher education, the labor market and earnings. In Thailand, education completion at higher grades is low. Networks and familial ties are important in the job search.

Global evidence suggests that, as EAP countries become richer and education levels continue rising, relative mobility in income will be increasingly linked to equity in economic opportunities. To meet the expectations of an increasingly educated society aspiring to become part of a global middle class, income mobility in EAP countries needs to keep pace with rising education. The state has a key role in making labor and other factor markets work more efficiently and equitably, through appropriate regulatory and investment policies, so that rising educational translates to commensurate improvements in the labor market.

4.5 CONCLUSION

Reducing inequality of opportunities can set in motion a virtuous cycle. When the outcomes of children become less tied to the circumstances of their birth or the characteristics of their parents, relative mobility is high, inequality traps are broken, and economic growth is stimulated. These positive changes foster a more inclusive process of growth, and in turn helps mobility rise further. A virtuous cycle is reinforced by promoting social cohesion, as people no longer feel excluded from progress, have improved perceptions of fairness and optimism, and can more realistically meet their aspirations. For example, in countries with greater relative mobility in education, parents are found to be likely to be more optimistic, with a larger share believing that their children have the opportunities to learn and grow (Narayan et al., 2018). Reducing inequality has been empirically linked to boosting economic growth in some countries, though a global relationship has not been found (Ferreira et al., 2013; World Bank, 2006, 2016). On the other hand, when society is more unequal, higher growth rates are required to reduce poverty (World Bank, 2016).

There are important areas for deeper analysis. Vulnerabilities do not end at childhood. Giving children an equitable start early on is just the first step. A cursory examination of young adults aged 15-21 shows that education enrolment and completion begin to decline after compulsory education, which ends at the lower-secondary level at age 14. Only one-quarter of males between 24-26 years of age have completed post-secondary education. The rate for girls is slightly better at 43 percent, but still far from a majority. Thailand needs to aim for higher education standards and quality indicators as benchmarks.

Policies and interventions can compensate for disadvantages experienced by children born into adverse circumstances. Governments can play a role in equalizing opportunities for the next generation, which can boost growth and narrow inequality in outcomes. Basic access to education, health, and infrastructure are public goods in which the government can play a role in providing services in a more equitable manner. Investment in the next generation must be equitable; every child in Thailand must be offered the opportunity to reach the highest levels of aspirations without being limited by the circumstances of his/her childhood. Government can promote policies such as early childhood education and group-based programs targeted at specific groups. Service delivery can be improved in terms of both access and quality.

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28 Based on linear regressions of relative mobility in education on public spending on education or total public spending (as a share of GDP) and (the logarithm of) per capita GDP of an economy, pooling cohorts from the 1960s to the 1980s and including cohort fixed effects (Narayan et al., 2018, chapter 4).

29 Relative mobility increases with per capita GDP if the latter exceeds a certain level (roughly US$2,500 per capita at 1990 purchasing power parity), probably because the policies needed to equalize opportunities are not affordable at lower levels of national income (Narayan et al, 2018). A similar pattern is seen for the EAP countries as well.

CONCLUDING SECTION

Thailand's official poverty rate increased in 2016 and again in 2018. These were the fourth and fifth instances official poverty rates increased since 1988, the previous three instances occurring near financial crises. In 2018, poverty rates in the Central and South regions remained higher than in 2014. Thailand boasts a successful story of poverty reduction: over the past 30 years, official poverty has reduced from 65.2 percent in 1988 to 9.85 percent in 2018, but poverty in 2018 remained higher than in 2015.

Recent economic, labor market, and environmental challenges reveal that Thai households are vulnerable to falling back into poverty. Constraints to persistent poverty and inequity include employment in the low productivity agriculture sector, an aging society, lagging regions, a conflict-afflicted South region, and heterogenous access to services.

How serious are the recent increases in poverty and what do they indicate for emerging trends in household welfare? While the increase in poverty in 2016 is small, the increase in poverty in 2018 was larger and more widespread. Average total household income per capita declined in the period 2015–17, and more so in the lower ends of the distribution. Real farm and business incomes declined in rural and urban areas, respectively. Wage income also declined in urban areas. Nationally, this signals a reversal in trends from the past. In the period 2007–13, wages, farm incomes and remittances contributed to poverty reduction, and in the period 2015–17 these were sources of rising poverty. Trends in economic growth and perceptions in 2018 and onward indicate that households will still continue to face challenges.

The external environment is changing, and not just in Thailand. Across East Asia, countries are facing challenges and changing conditions as traditional strategies of economic growth are no longer sufficient. Countries in the region, including Thailand, must boost productivity growth, harness innovation and new skills, and improve government capacity.

Aside from improving policies on safety nets, targeting, and risk mitigation to help the vulnerable, longer-term strategies are also necessary. These longer-term strategies will involve, among other things, investing in the next generation. Thai children are growing up on an unlevel playing field. Children in urban areas and Bangkok are more likely to have access to basic goods and services in education, health, and infrastructure—which are deemed necessary for an individual to realize their full potential in society. Reducing inequality of opportunities can set in motion a virtuous cycle. When the outcomes of children become less tied to the circumstances of their birth or the characteristics of their parents, relative mobility is high, inequality traps are broken, and economic growth is stimulated.

This report has reviewed recent empirical poverty and equity trends in Thailand, which showed that households have been facing challenges that have reduced their income and consumption. These findings call for more research on the critical constraints to poverty reduction and equity, ranging from lagging economic growth in some regions to inequity in childhood opportunities.

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ANNEX

ANNEX A.
NATIONAL VS INTERNATIONAL MEASURES OF POVERTY

Global and national poverty measurements serve different purposes and should be treated separately. The international poverty rate is used primarily to monitor progress on global targets such as the SDGs, and to facilitate cross-country comparisons. National official poverty rates are the best representations of poverty for a country's own policy-making. This chapter overviews both measurements and notes commonalities and differences. The distinction between national and international measures of poverty is important since this report refers to both types. International measurements of poverty are used for cross-country comparisons and analysis where replication of the national poverty rate is not feasible.

A.1 DATA

The Socio-Economic Survey (SES) of Thailand is an essential survey administered by the Thailand National Statistics Office (NSO). It is the official data source of national poverty and inequality estimates and is also used by the World Bank and international agencies for SDG monitoring.

The first SES was conducted in 1957 and was hence conducted about every five years. From 1987 to 2004, the SES was conducted every two years. Since 2006, the SES has been conducted annually. However, not all information is collected on an annual basis. Income is collected every two years. Typically, 40,000 to 50,000 households are surveyed throughout the calendar year. There are 77 strata, the survey is representative at the province level.[30] Between 2013 and 2014, the sample frame of the SES was updated from the 2000 to 2010 Census. This resulted in a shift in the urban and rural population share. This shift affected the descriptive statistics of some variables more than others. Statistics that were more likely to be affected are those that tend to vary across rural and urban populations such as agricultural employment. The next population Census is scheduled for 2020. Therefore, this report focuses on trends starting in 2014.

The NSO produces publications annually including analysis of patterns in consumption and income. The NSO also produces small-area poverty estimates using the PovMap software.[31] The Social Database and Indicator Development office in the NESDC[32] uses the SES to produce poverty assessments annually that describe poverty and inequality trends and provide policy recommendations. Together, these two organizations provide comprehensive and timely assessments of data trends and policies to improve well-being in Thailand.

30 In 2011, Beung Kan became the 76th province in Thailand. Bangkok and Pattaya are considered Special Administrative Districts. Though in the SES dataset, Pattaya is merged with surrounding areas.

31 These estimates were published in a tabular format with estimates for over 7,000 tambons. The World Bank team recently moved the information into a more digestible map. This map can be viewed in Note #1 of the Thematic Note Series.

32 In late 2018, the Office of the National Economic and Social Development Board (NESDB) was renamed to the Office of the National Economic and Social Development Council (NESDC).

A.2 NATIONAL POVERTY

National official poverty estimates are published by the NESDC. National poverty estimates are published annually using household consumption per capita and inequality in both consumption and income. National official poverty lines are household-specific.

A.2.1 WELFARE AGGREGATE

A consumption welfare aggregate typically includes four categories: food; non-food; the use value of durables; and housing. Table A.A.12 lists the components of Thailand's household consumption aggregate that is used for poverty measurement. There are 11 non-food expenditure categories in the SES, covering 127 non-food items. For each of these variables, the survey also has information on if the item was paid for in cash or received in-kind. There are 14 food and beverage categories. The total summation of food and non-food components yield the household consumption aggregate used for poverty and inequality measurement.

Table A.A.12. **Consumption categories**

Consumption categories	SES variables
Non-food categories	
1. Housing (shelter)	EG01-EG05
2. Household operation, furniture, and equipment	EG06-EG27
3. Service workers in household	EG28-EG29
4. Cloth, clothes, and clothing material	EG30-EG35
5. Footwears	EG36-EG38
6. Personal care	EG39-EG46
7. Medical and health care	EG47-EG60
8. Transportation and communication	EG61-EG87
9. Education expense	EG88-EG92
10. Recreation/religious activity expense	EG93-EG110
11. Special ceremony expenses	EG111
Food categories	
1. Grains and cereal products	EF01
2. Meat and poultry	EF02
3. Fishes and seafood	EF03
4. Milk, cheese, and eggs	EF04
5. Oils and fat	EF05
6. Fruits and nuts	EF06
7. Vegetables	EF07
8. Sugar and sweets	EF08
9. Spices and condiments	EF09
10. Non-alcoholic beverages (at home)	EF10-EF11
11. Prepared food (taken home)	EF12
12. Food and non-alcoholic beverages (eaten away from home)	EF13
13. Alcoholic beverages	EF14-EF15
14. Tobacco products	EF16-EF17
All Food	

Figure A.A.68 illustrates the share and level of monthly household consumption per capita in 2011 Thai baht. The descriptive statistics are based on a constructed aggregate, which is the summation of all components listed in Table A.A.12. Food is by far the largest consumption category, comprising about half of household consumption expenditures. Transportation and communications, and housing follow as the second- and third-largest consumption categories. In 2017, the top decile had an average consumption per capita that was about eight times higher than the lowest decile of the population (Figure A.A.68B). In the wealthiest households, the share of expenditure in transportation and communications is significantly larger than among poor households.

Figure A.A.68. **Consumption patterns by decile, 2017**

A. Share

B. Household per capita (THB, 2011)

Legend (A):
- Housing
- Footwear
- Education
- Household
- Personal
- Rec

Legend (B):
- Service workers
- Medical
- Special
- Clothes
- Transport & Comms
- Food

Source: World Bank calculations using THA SES 2017
Notes: decile 1= poorest, and decile 10 = richest
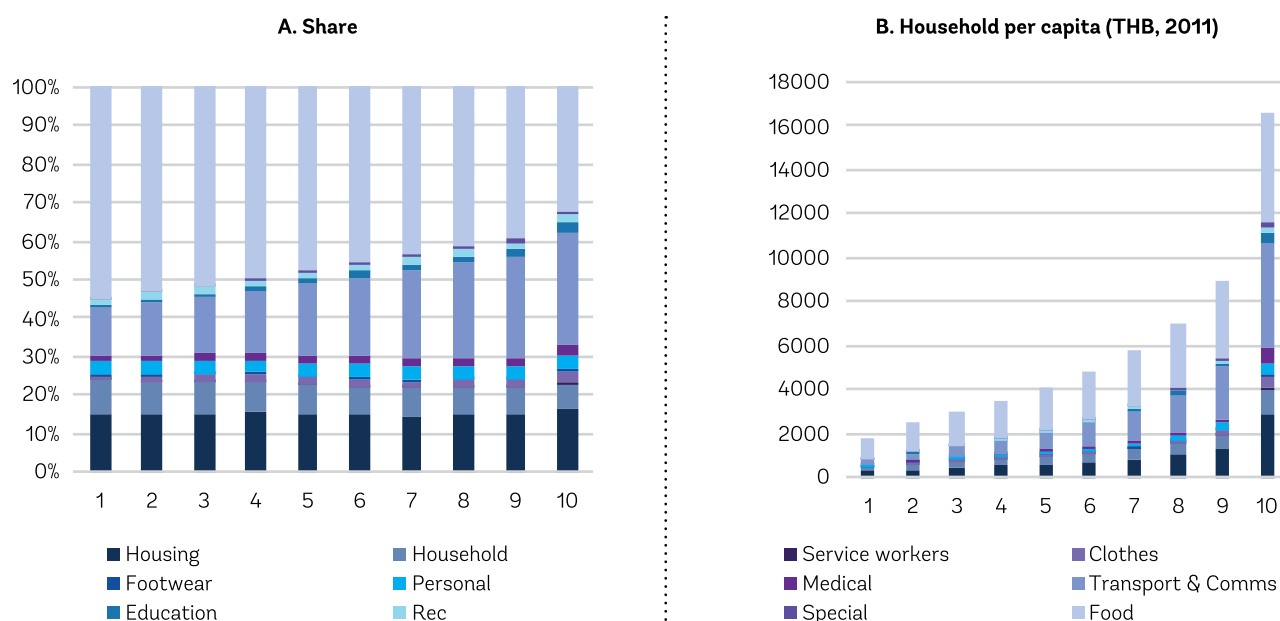
The official income aggregate for welfare measurement is household per capita current income. Income data are collected every two years, and currently on the odd years. Table A.A.13 lists the income categories that comprise household current income. In principle, the in-kind components of income are equivalent to the in-kind components of consumption. From the expenditure modules, consumption items can be purchased, received for free, or own-produced.

Table A.A.13. **Income categories**

Income categories	SES variables
1) Wages and Salaries	A18
2) Income from work compensations or terminated payment	A26
3) Net profit from business	A20
4) Net profit from farming	A22
5) Income from pensions/annuities, other assistances	A24
6) Income from money assistance from other people outside the household	A28
7) Income from elderly & disability assistance from govt and other orgs	A30
8) Income from rent of house / land and other properties (including license and copyright)	A32
9) Income from saving interests, shares, bonds, and stocks	A34
10) Income from interests of individual lending	A36
11) From rental estimated of free-occupied house (including own house)	A39
12) From unpaid of goods and services	A40
13) From unpaid of food and beverages	A41
Total monthly household current income per capita	

Income data are collected in two reference periods: "Last Month" and "Average per month". Household current income is based on the data series reflecting "Average per month". Wages are the total wage and salary income across all household members and their occupations. Earnings from wages and salaries are recorded when a household member worked as an employee, though it cannot be determined if the job is formal or informal. Income from "elderly and disability assistance" likely includes all forms of social assistance. In the Thai version of the questionnaire, the wording of the questionnaire indicates all forms of social assistance. In-kind consumption items including food and housing are also added to the income aggregate.

Figure A.A.69. **Distribution of income components, by decile**
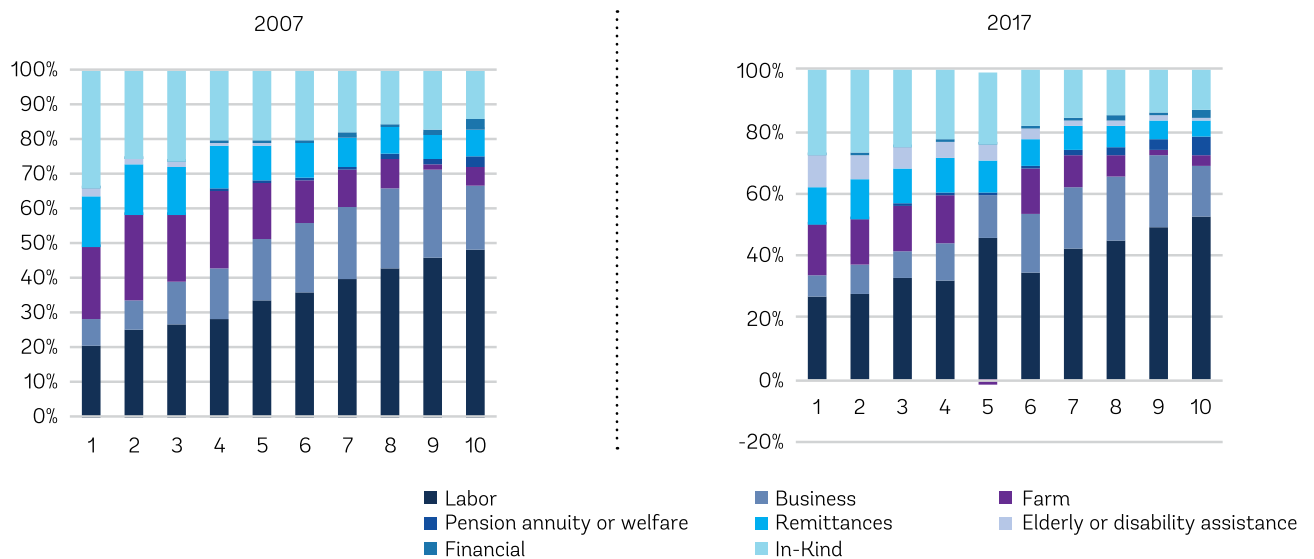
Source: World Bank calculations using THA SES 2017.
Notes: There is a hosuehold with very large negative farm income.

A.2.2 NATIONAL POVERTY LINE

The first national poverty line in Thailand was developed in 1979 with assistance from the World Bank (Meesook, 1979). Since then, there has been three updates to the construction and methodology, which are summarized in the table below.

Table A.A.14. **National poverty line methodology updates**

Year of update	Data used	Methodology
		For details on the first poverty line methodology, see Meesook (1979).
1998	1992	Kakwani and Krongkaew (2000) • Non-food accounts for 40 percent of the total poverty line. • Income approach
2004	2002	The 2004 update was calculated by UNDP and TDRI (Jitsuchon, Plangpraphan, and Kakwani, 2006; NESDB, 2004), and follows the Cost of Basic Needs methodology. New features include: • Consumption approach taking into account calorie and protein requirements. • Economies of scale of 10 different consumption groups, one food group and nine non-food groups • The average household poverty line from the 2006 revision is about 30 percent higher than the 1998 version.

Year of update	Data used	Methodology
	2011	The methodology was in most respects identical to the 2004 update, though with some parameter changes. These updates reflect changes in prices and consumption patterns. • The new poverty line recognized dissimilar patterns of consumption across geographic areas. • The reference group was changed from the first quintile to the first decile, based on consumption per capita. • Prices used to price the food basket are used directly from the SES, rather than price data collected by the Ministry of Commerce (MOC), which collects prices from, distributive centers or outlets, not from small retailers. • Excludes some "luxury expenses" out of the calculation of non-food poverty lines since they are likely to occur to upper-level households such as tuition fee in private school, outpatient care, and vehicle purchase or repairing. • It rules out sample in decile6 to decile10 from the non-food poverty lines. • Expand the sample size of metropolitan Bangkok to calculate non-food poverty lines, by including other nearby urban areas. The new sample embraces urban households in Nonthaburi, Chonburi, Chiangmai, Phuket, and Trang. • The sampling weight is revised to reflect counts from the 2010 Thailand population census.

The current household-level national poverty lines are computed based on the methodology updated in 2011. The average national poverty lines are shown in Figure A.A.70. The growth trend in the national average household poverty line is similar to the trend in the CPI. Average household-level poverty lines are higher in Bangkok, which are due to higher prices (cost-of-living), as well as differences in consumption baskets. A couple observations are worth noting. In 2015, average poverty lines declined, consistent with the national CPI. In recent years, the change in poverty line has slowed down. In the period 2010–11, the growth of the average poverty line was 5.7 percent, compared with growth of 0.9 percent in the period 2017–18.

Figure A.A.70. **Average national poverty lines, by region**
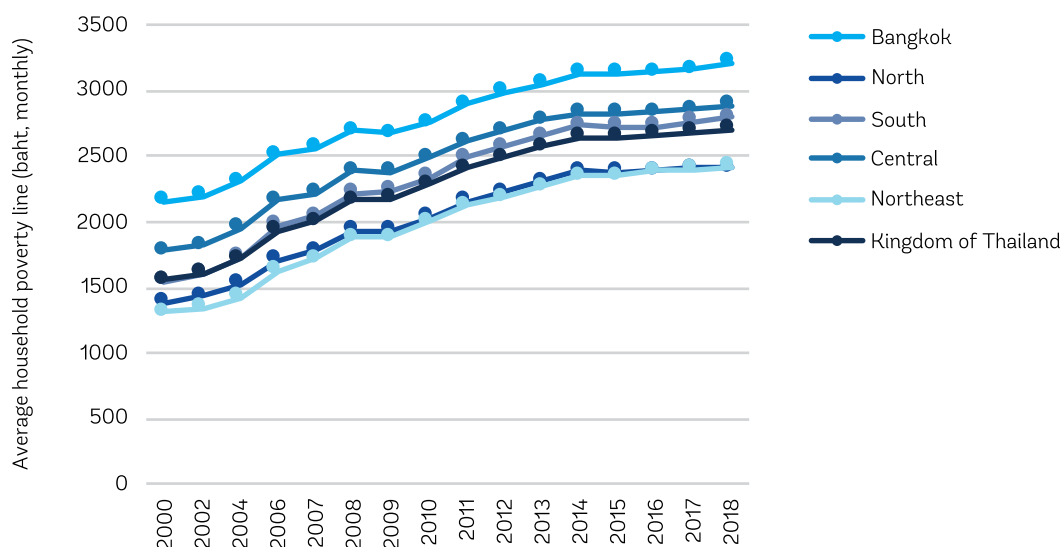
Source: NESDC.
Notes: Average of household-level poverty lines by region and year.

A.3 INTERNATIONAL POVERTY MEASUREMENT

In 2015, the World Bank's International Poverty Line (IPL) was updated to US$1.90/day 2011PPP to account for new global price data emerging from the 2011 PPP round.[33] The extreme poverty rate based on the IPL is used to monitor the World Bank's twin goals and Sustainable Development Goal 1. The World Bank's International Poverty Line (IPL) of US$1.90/day 2011PPP is equivalent to B 26.16 per person per day in 2017 prices. By most standards, the IPL is too low for daily functioning in Thailand.

33 The previous international poverty line was US$1.25/day 2005PPP. Because the line was designed to preserve real purchasing power in poor countries, the revisions lead to relatively small changes in global poverty incidence: from 14.5 percent in the 2005 PPP method to 14.1 percent in the new method for 2011 (Ferreira et al., 2016).

This report focuses on the upper middle-income class (UMIC) poverty line, which is set at US$5.5/day 2011PPP. This poverty line reflects the typical standards among upper middle-income countries (see Box 1.3 and Annex C for further information on the UMIC poverty line). The UMIC poverty line is equivalent to B 75.73 per person per day, and is much more relevant for Thailand's level of development. This poverty threshold is also similar in value to the average of national household poverty lines in Thailand.[34]

Thailand's welfare aggregate used for international poverty measurement is household current consumption per capita. To convert the nominal welfare aggregate from baht to 2011 PPP units, national CPI and PPP conversation factors are used.

To inflate household consumption from a particular survey year to 2011, the national CPI is used. However, there are also other CPIs collected such as the low-income CPI collected by the Ministry of Commerce. The low-income CPI shows higher price inflation.

Purchasing Power Parity (PPP) conversions are used rather than exchanges rates to assure cost-of-living comparability across countries. PPP allows for the conversion of a country's income and consumption data into globally-comparable terms. The PPP is computed on the basis of price data collected by countries across the world. The PPP of an economy is defined as the number of currency units required to purchase a basket of goods and services that can be purchased with one unit of the currency of a reference or base country. Currently international poverty is measured in 2011 international prices.

While Thailand has nearly eradicated extreme poverty based on the IPL, higher standards for monitoring poverty are required in this upper middle-income country where residents face higher costs of living and have middle-class aspirations. Thailand is one of developing EAP's most prosperous economies, with also one of the lowest extreme poverty rates in the region at 0.03 percent in 2017. As countries have grown economically, the yardstick for measuring extreme poverty[35] based on the International Poverty Line (IPL, US$1.90/day 2011PPP) has

gradually become less relevant to the lives of the people in middle-income countries. In developing EAP, China, Thailand, Mongolia, and Malaysia all have international poverty rates less than 1 percent. The conception of poverty and the standards of living they aspire toward are much higher than what is benchmarked by the IPL. This observation is especially relevant for Thailand, which is an upper middle-income country.

A.4 COMPARING NATIONAL VS INTERNATIONAL POVERTY MEASUREMENT

The measurement of national and international poverty rates follows different methodologies that may lead slightly different trends. Poverty measurement requires a welfare aggregate and poverty line. The welfare aggregate used for national and international poverty measurement is the same, nominal household current consumption per capita. The main differences between the national and World Bank international measures are the use of poverty lines. The World Bank Group (WBG) measure is based on a singular poverty line based in international 2011 PPP dollars, which allows for comparability across countries. Thailand uses household-level poverty lines, which vary by location and household composition in age and gender.

Poverty rates and Gini coefficient from the World Bank and Government of Thailand align fairly well at the national level (Figure A.A.71). Poverty rates between the World Bank and Government of Thailand follow similar trends, and they are not expected to be identical since poverty lines differ. Inequality measures align more closely than poverty over the long series. Measurement of inequality is more replicable since it relies only on a welfare aggregate. As long as the welfare aggregates in the household survey are identical, the Gini coefficients can be replicated.

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[34] Thailand uses poverty lines that vary by household. The average of these poverty lines is close in value to the international UMIC poverty line.

[35] Extreme poverty refers to poverty based on the International Poverty Line of US$1.90/ day 2011PPP.

Figure A.A.71. **The official and World Bank poverty and Gini coefficient**
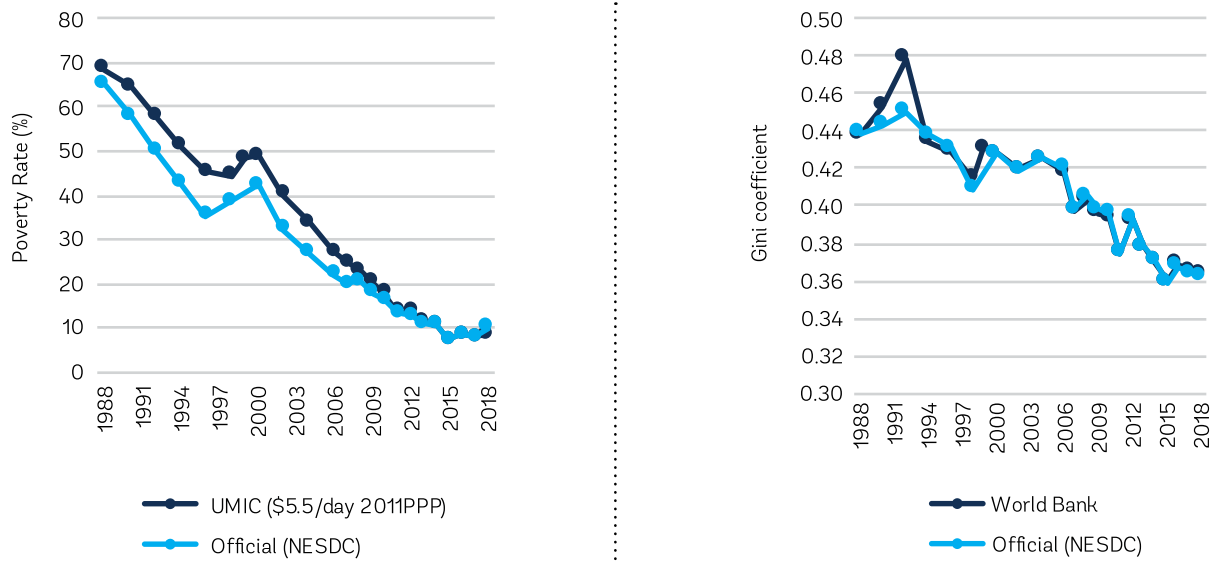
Source: World Bank PovcalNet and East Asia Team for Statistical Development, NESDC.
Notes: Consumption-based Gini coefficients and poverty rates.

Poverty rates and the number of poor as measured by the Government of Thailand and the World Bank differ at the regional level due to difference in poverty lines. There are differences in poverty rate at the regional level because of the difference in accounting for cost of living and household composition. By international poverty measures, the Northeast is the poorest, while the South is the poorest based on the Government of Thailand's official estimates.

Figure A.A.72. **The national and World Bank UMIC poverty rates by region have similar trends but different levels**

South
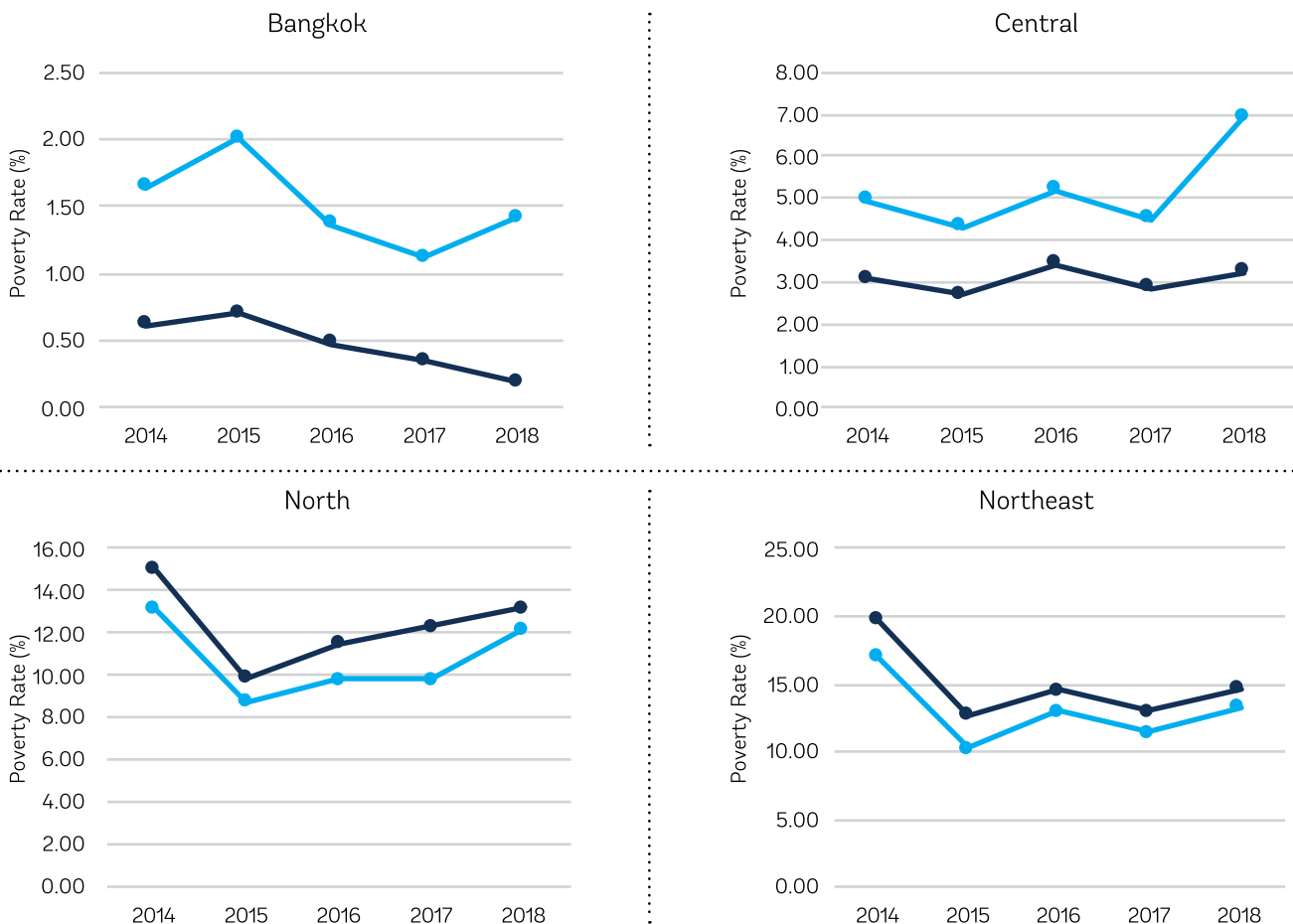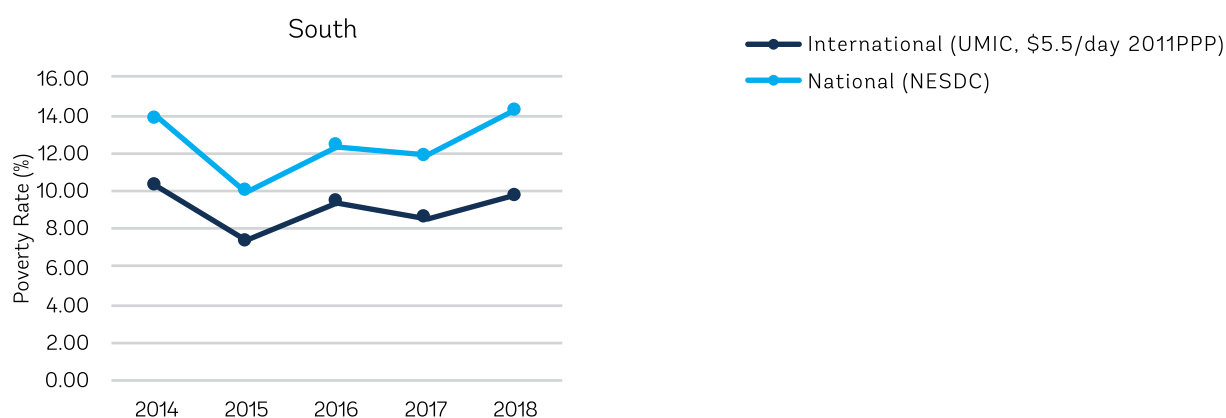
Source: World Bank staff calculations.
Notes: Consumption-based poverty rates.

The World Bank team does not have access to recent official household level poverty lines. Due to the lack of this information, some estimations at disaggregated levels using micro data may not replicate national official estimates. In Chapter 1, the overview of poverty trends utilizes national official estimates of provincial, regional, and country-level estimates of poverty to illustrate recent changes. However, Chapter 3, which aims to examine the sources of changes in poverty, is based on changes in poverty according to international UMIC poverty rates. At the national level, the change in UMIC poverty and the Government of Thailand's official poverty rate is similar.

Table A.A.15. **Summary of welfare concepts used by chapter**

Chapter	Welfare and poverty line concept used
Chapter 1. Recent developments	An overview of recent trends and changes in poverty is discussed using the official poverty rates released by NESDC. Growth incidence is calculated by World Bank staff using nominal household consumption or income per capita.
Chapter 2. Thailand vs ASEAN peers	Cross-country analysis is conducting using the World Bank global monitoring indicators. (See Annex C for definitions.) • International Poverty Line (US$1.90/2011PPP) • Lower-Middle Income Class Poverty Line (US$3.2/day 2011PPP) • Upper-Middle Income Class Poverty Line (US$5.5/day 2011PPP) • Shared Prosperity • Multi-dimensional Poverty Measure
Chapter 3. Sources of poverty changes	In the absence of household-level poverty lines, this chapter analyzes changes in poverty based on the international UMIC poverty line concept (US$5.5/day 2011PPP).
Chapter 4. Human Opportunity Index	Monetary poverty is not discussed in this chapter. There is some profiling based on whether or not children are in poor or non-poor households, and this is done using the international UMIC poverty concept. Deciles are based on nominal household consumption per capita.

The measurement of poverty is a complex and technical exercise. Many factors can influence trends and who is deemed poor. This annex introduced a comparison of the international and national poverty measurement strategies. International measurement is used for cross-country comparisons and global monitoring. National poverty measurement is viewed as the official poverty rate that is the best representation of a country and is the most relevant for policy-making. This report presents analysis using both the national official and international poverty statistics.

ANNEX B.
DATA IN ASEAN COUNTRIES

Global monitoring indicators are calculated using official household surveys. Most measures are based on household consumption per capita, with the exception of Malaysia and the Philippines, which use household income per capita (Table A.B.16). Consumption and income welfare aggregates typically follow the official aggregates used by national governments. In some cases, welfare aggregates are readjusted by household composition into per capita terms. For Thailand and Malaysia, welfare aggregates are nominal since there is no spatial deflator, since the price differences are embedded into the national poverty line. For the Philippines, the spatial deflator is calculated as the ratios of the regional poverty lines. Survey frequency varies by country, and for years where data are not available, poverty rates are estimated or projected.

Table A.B.16. **Household surveys – ASEAN countries**

Country	Welfare Type	Survey	Data collected since 2002
Indonesia	Consumption	SUSENAS	Annual
Lao PDR	Consumption	LECS	2002, 2007, 2012
Malaysia	Income	HIS	2004, 2007, 2008, 2011, 2013, 2015
Myanmar	Consumption	MPLCS	2015, 2017
Philippines	Income	FIES	2003, 2006, 2009, 2012, 2015
Thailand	Consumption	SES	Annual
Vietnam	Consumption	VHLSS	2010, 2012, 2014, 2016

Notes: Countries not included because of lack of microdata: Cambodia, Singapore, and Brunei. Does not include data in the field or not yet available to the World Bank.

ANNEX C.
INTERNATIONAL INDICATORS OF POVERTY AND EQUITY

This annex reviews the definitions of the World Bank global monitoring indicators. Some descriptions are summarized from the 2018 Poverty & Shared Prosperity Flagship: Piecing Together the Poverty Puzzle.

C.1 THE INTERNATIONAL POVERTY LINE

International poverty and national poverty assessments should be treated separately, and used for different purposes. The international poverty line is used primarily to track global extreme poverty and to measure progress on global goals.

The threshold for what it means to be poor in an internationally comparable sense was originally based on the national poverty lines of eight poor countries in the world. The result of this exercise yielded an international poverty line of US$1.01 and coined the term "dollar-a-day" (Ravallion et al., 1991). This threshold has been subsequently updated several times, and most recently in 2015 to account for new global price data emerging from the 2011 PPP round, which captured updated data on global relative prices. The most recent update, updated the US$1.25 2005PPP poverty line. Since the update was based on an update in prices, the revision was in a manner that maintained the real value of this threshold—and a poverty line of US$1.90 was set in 2011 PPP terms. In other words, the previous US$1.25/day 2005PPP and US$1.90/day 2011PPP poverty lines are equivalent in real terms.

Purchasing Power Parity (PPP) conversions are used rather than exchanges rates to ensure cost-of-living comparability across countries. The PPP of an economy is defined as the number of currency units required to purchase a basket of goods and services that can be purchased with one unit of the currency of a reference or base country (World Bank, 2007). PPP allows us to put each country's income and consumption data in globally comparable terms. The PPP is computed on the basis of price data collected by countries across the world. The responsibility for determining a particular year's PPP rests with the International Comparison Program (ICP), an independent statistical program with a Global Office housed within the World Bank's Development Data Group.

The PPPs have been used in the World Bank's poverty monitoring since the World Development Report 1990—using the 1985 ICP benchmark results—and then over time, the subsequent ICP benchmark rounds of 1993, 2005, and now 2011 have been incorporated. PPPs are used to compare household consumption and income with a common global poverty line expressed in US dollars, since nominal exchange rates do not accurately capture differences in costs of living across countries.

C.2 SHARED PROSPERITY

The analysis uses published shared prosperity indicators from multiple editions of the Global Database of Shared Prosperity (GDSP). This database includes statistics on annualized consumption or income growth of the bottom 40 percent of the population (the bottom 40) and related indicators over similar time periods and intervals. All published numbers were vetted by an internal Technical Working Group. One exception is the growth calculations for Thailand for 2015-17 and 2015-18, is too recent and has not yet been vetted by an internal working group.

The shared prosperity measure represents the annualized growth rate of the mean household per capita income or consumption of the poorest 40 percent of the population (the bottom 40), where the bottom 40 are determined by their rank in household per capita income or consumption.

Some data requirements have to be met for official World Bank shared prosperity indicators to be calculated:

• Two relevant household surveys have been conducted and have yielded comparable data.
• The period between the selected initial and end years should range between three and seven years.
• In cases where multiple surveys can fulfill these criteria, the most recent survey years are typically chosen.

C.3 LOWER MIDDLE- AND UPPER MIDDLE-INCOME CLASS POVERTY LINES

The World Bank introduced two additional lines in its global poverty monitoring efforts. As the world grows wealthier and extreme poverty is increasingly concentrated in distinct geographic pockets, legitimate questions have been raised over whether the US\$1.90 International Poverty Line (IPL) is now too low to define whether someone is poor in all countries of the world. When the US\$1.90 IPL was constructed based on national poverty lines for the 15 poorest countries, 60 percent of the global population was living in low-income countries. The average value of these national poverty lines was meaningful for the vast majority of the poor and a large portion of the world's population. By 2013, however, only 8 percent of the global population was living in low-income countries (Fantom and Serajuddin, 2016). Consequently, in many countries the use of average assessments of basic needs in low-income countries is gradually becoming less relevant.

Lower-Middle Income Class Line (LMIC): US\$3.20/day 2011PPP
Upper-Middle Income Class Line (UMIC): US\$5.50/day 2011PPP

These lines, which are typical of standards among lower- and upper-middle-income countries respectively, are designed to complement, not replace, the US\$1.90 IPL. To derive these two new global poverty lines, medians of the national poverty lines of countries in lower middle- and upper middle-income class countries were calculated. Therefore, US\$3.20/day 2011PPP is the median of national poverty lines from LMIC countries when converted to 2011PPP units, and the US\$5.5/day 2011PPP is the median of national poverty lines from UMIC countries (Table A.C.17).

Table A.C.17. **National poverty lines, circa 2011**

Economy, income classification	Median
Low-income economy	1.90
Lower middle-income economy	3.20
Upper middle-income economy	5.50
High-income economy	21.70

Source: Jolliffe and Prydz 2016.
Notes: Values are rounded to nearest 0.10. Economies are classified on the basis of official World Bank income classifications, which rely on measures of per capita gross national income. Estimates are based on national poverty lines in 126 economies. The selected poverty line for each economy is the one that is closest in time to 2011.

C.4 MULTI-DIMENSIONAL POVERTY MEASURE

Monetary-based measures do not encompass all aspects of human well-being. One reason for this is that not all goods and services that matter to people are obtained exclusively through markets. Consequently, the prices necessary to cost these goods and services either do not exist (e.g., a clean environment or secure community), or do not accurately reflect their true consumption value (e.g., because they require large public investments to make them available, such as power). Other core services at least partially provided through systems supported by direct government spending include health care and education. General government health expenditure accounts for more than half of total global health expenditure. Likewise, governments on average spend the equivalent of nearly 5 percent of the GDP of their economies on education. The presence of such goods renders the traditional monetary welfare measure incomplete with respect to a variety of core aspects of well-being.

Information on income or consumption is the traditional basis for the World Bank's poverty estimates. However, in many settings, important aspects of well-being, such as access to quality health care or the ability to live in a secure community, are not captured by standard monetary measures. To address this concern, an established tradition of multidimensional poverty measurement measures and aggregates non-monetary dimensions of well-being into an index. The United Nations Development Programme's Multidimensional Poverty Index (Global MPI), produced in conjunction with the Oxford Human Development Initiative, is a foremost example of such a multidimensional poverty measure (UNDP, 2010).

The World Bank's Multidimensional Poverty Measure (MPM) complements the Global MPI by placing a monetary measure of well-being alongside nonmonetary dimensions. By doing so, the MPM explores the share of the deprived population that is missed by a sole reliance on monetary poverty as well as the extent to which monetary and nonmonetary deprivations are jointly presented across different contexts.

ANNEX D.
INCOME DECOMPOSITION METHODOLOGY[36]

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Early strategies to decompose poverty primarily decomposed changes targeting summary statistics. Changes in poverty were decomposed into effects from growth and redistribution (Datt-Ravallion, 1992), growth, redistribution, and prices (Kolenikov and Shorrocks, 2005), or changes in groups (Ravallion-Huppi, 1991). These decompositions targeted summary statistics, or the mean of the distribution. However, measuring changes in the aggregate may be misleading since economic growth may disproportionally impact growth across the distribution. It is most informative to analyze how the distribution changes over time from various factors.

More recent decompositions utilizing the full distribution of consumption allows for the measurement of the contributions to poverty reduction from various components. Changes in the distribution of household consumption per capita across two periods can be decomposed into contributions by calculating a Shapley-Shorrocks estimate for each component based on a modified methodology from Barros et al. (2006). The adaptations to the methodology contribute to the literature in several ways (Inchauste et al., 2014; Azevedo et al., 2013). First, the updated methodology focuses on consumption rather than income. Second, the decomposition computes a cumulative counterfactual distribution by adding one variable at a time. Third, cumulative decompositions are calculated along every possible path and averaged to address the issue of path dependence. (See Box 1 for an explanation of the Shapley value.)

There are two caveats of the described method. First, one cannot infer if changes are from changes in returns or endowments. For example, did wages increase because the working population became more educated or did the minimum wage increase? Second, the method is not a general equilibrium method, meaning that the counterfactual distributions are not the result of an economic equilibrium (Azevedo et al., 2013). This implies that the contributions to poverty changes do not have a causal effect, but are an exercise used to detect distributional changes. It is assumed that by keeping all other components constant, each income component is allowed to change and the effect on the change in the distributional statistics of the welfare aggregate is detected.

Changes in the SES limits the study of changes in income over longer periods of time. The SES series has a break between 2013 and 2014 survey collections since the sampling frame was updated. In 2013, the sampling frame was the 2000 Census, and in 2014 the sampling frame was the 2010 Census. Trends using data before and after the break are not comparable For example, a very noticeable structural break in the urban and rural share of the population exists between 2013 and 2014. Intuitively, if the urban share of the population is much higher because the country is more urbanized in the 2010 Census, then average incomes and wages would also appear much higher simply due to the

population shift in the survey. This also means that the 2013 data probably underestimated the actual urban share of the population. Consumption is collected annually, and income is collected every other year. Since income is collected only in the odd years, this means that the decomposition cannot be conducted for the 2014–17 period.

The income and consumption aggregates used in this note follow the official construction and definition in the Thailand Socio-Economic Survey (SES). Therefore, income and consumption in this note matches the aggregates used in official poverty and inequality measurement by the NESDC, and poverty rates can be replicated. Also changes in poverty from 2015–17 match World Bank calculations of international poverty based on the US$5.5/day 2011PPP poverty line.

The official income aggregate of Thailand includes components listed in Table A.D.18. Income data are reported in monthly units and includes cash and in-kind sources. Labor income is the total of wages, salaries, and income from work compensation or terminated payment. Non-labor income includes all other sources of income. No adjustments are made to these components, with the exception of aggregating some common elements to reduce the number of components to be used in the Shapley decomposition. The number of paths of the Shapley-Shorrocks increases exponentially when adding more components. To reduce the number of components, financial and in-kind sources of income have been aggregated.

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36 For additional details, please see Chapter 2: Shapley decomposition method description, in Inchauste et al., 2014. The method is adapted from Barros et al., 2006.

Table A.D.18. **Components of household income in the Thailand SES**

Label	Description
Public Assistance	1) Wages and Salaries
	2) Income from work compensations or terminated payment
Net Business	3) Net profit from business
Net Farm	4) Net profit from farming
Pension	5) Income from pensions/annuities, other assistances
Remittances	6) Income from money assistance from other people outside the household
Public Assistance	7) Income from elderly & disability assistance, and other government programs
Financial	8) Income from rent of house / land and other properties (including license and copyright)
	9) Income from saving interests, shares, bonds, and stocks
	10) Income from interests of individual lending
In-Kind	11) From rental estimated of free-occupied house (including own house)
	12) From unpaid of goods and services
	13) From unpaid of food and beverages

Source: SES.
Notes: The in-kind component in income and consumption are identical. Income in SES is recorded as monthly.

The richness of household surveys allows for changes in poverty across two cross-sections to be decomposed into multiple explanatory factors. Poverty is a function of household consumption, and changes in poverty can be decomposed into the factors as illustrated in Figure A.C.73. The decomposition is an identity and can be expanded or reduced based on data availability. For example, labor and non-labor income can be further decomposed if desired.

Figure A.C.73. **Household consumption per capita – a decomposed identity**
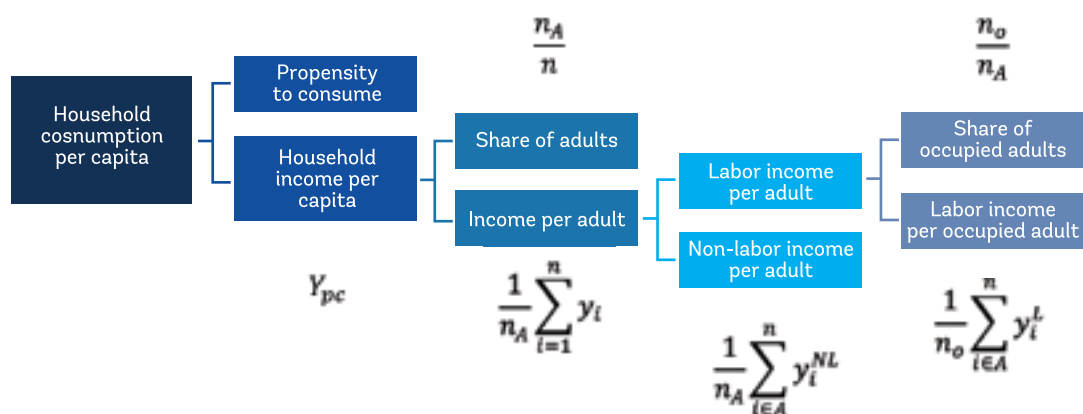
Notes: An illusration of Equation 5.

Household income per capita income (Y_{pc}) is total household income from all members (Y_h) divided by household size n.

$$Y_{pc} = \frac{Y_h}{n} = \frac{1}{n}\sum_{i=1}^{n} y_i \tag{1}$$

Assuming that only adults aged 15+ contribute to household income, the identity can be rewritten as below. Working age adults can receive wage income, while adults who are past retirement can receive pension income.

$$Y_{pc} = \frac{n_A}{n}\left(\frac{1}{n_A}\sum_{i=1}^{n} y_i\right) \tag{2}$$

Income per adult can be separated into labor and non-labor sources. In the case of Thailand, labor-income includes labor, net business, and net farm components that are described in Table A.D.18. Non-labor income includes pension, remittances, public assistance, financial, and in-kind sources.

$$Y_{pc} = \frac{n_A}{n}\left(\frac{1}{n_A}\sum_{i\in A}^{n} y_i^{L} + \frac{1}{n_A}\sum_{i\in A}^{n} y_i^{NL}\right) \tag{3}$$

Finally, in the case of labor income, we need to only account for employed or occupied adults

$$= \frac{n_A}{n}\left[\frac{n_o}{n_A}\left(\frac{1}{n_o}\sum_{i\in A}^{n} y_i^{L}\right) + \frac{1}{n_A}\sum_{i\in A}^{n} y_i^{NL}\right] \tag{4}$$

To create a mapping between household consumption and income, a variable, propensity to consume is introduced. Household consumption per capita is expressed as below, and is also identical to the illustration show in Figure A.C.73.

$$C_{pc} = \theta_h\left[\frac{n_A}{n}\left[\frac{n_o}{n_A}\left(\frac{1}{n_o}\sum_{i\in A}^{n} y_i^{L}\right) + \frac{1}{n_A}\sum_{i\in A}^{n} y_i^{NL}\right]\right] \tag{5}$$

To measure the contribution of the change in poverty from different components, the identity in Equation (5) is used. The contribution of each component to the total change in poverty is the average Shapley-Shorrocks estimate across all possible paths. More description on the Shapley-Shorrocks estimates is outlined in Box 1.

Table A.C.19. **Definitions and notation**

Variable	Definition
C_{pc}	Household consumption per capita
m	Propensity to consume
Y_{pc}	Household income per capita
Y_h	Total household income (household h)
y_i	Total income from household member i
y_i^L	Total labor income from household member i. Assuming labor income only from occupied or employed adults.
y_i^{NL}	Total non-labor income from household member i.
n	Number of household members
a	Number of adult household members aged 15+
O_a	Number of adult household members aged 15+ and are also employed or occupied

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Box A.C.5. **The Shapley-Shorrocks Estimate**

The Shapley value (1953) is the fundamental principle that allows for the decomposition of changes in poverty to be calculated over complex relationships. The Shapley value of a component is its average contribution to a total value over all possible orderings of factors. This concept can be applied to measuring changes in poverty over time. In this application, the total value is the poverty headcount by creating counterfactuals and estimating each factor's contribution to the total value.

The poverty rate (ϑ) is a function of the distribution of household consumption per capita (C_{pc}). See Figure A.C.74 for the decomposition of household consumption per capita into factors.

$$\vartheta = \Phi\Big(F\big(C_{pc}(n, y^L, y^{NL})\big)\Big),$$

Suppose there are two cross-sectional distributions (ϑ_t) at two points in time $(t = 1 \text{ and } t = 2)$:

$$\vartheta_1 = \Phi\Big(F\big(C_{pc}(n_1, y_1^L, y_1^{NL})\big)\Big),$$

$$\vartheta_2 = \Phi\Big(F\big(C_{pc}(n_2, y_2^L, y_2^{NL})\big)\Big),$$

It is possible to decompose changes in the poverty rate (ϑ) into changes in any of the components. The Shapley decomposition approach constructs a counterfactual distribution $(\tilde{\vartheta}_2)$ by substituting any of the income components from the first period (n_1, y_1^L, y_1^{NL}) into the distribution of the second period (ϑ_2), one at time.

To obtain the average marginal contribution to the change in poverty from a particular component, counterfactual distributions need to be calculated. In order to allocate every income source across the periods and perform a counterfactual distribution with cross-sectional data, Azevedo et al. (2013) suggests ranking the distribution of each income source into quantiles in each period and use the average quantile value from the first period for those individuals that are ranked in the same quantile in the second period.

A difference from the Barros et al method is that counterfactuals distributions are calculated for all possible combinations, which eliminates the issue of path dependence. This decomposition approach also addresses the limitation of path dependence, implying that the order in which the decompositions of each component are made alters the final magnitude of the decomposition outcome (Fortin, Lemieux and Firpo, 2010). To remedy this, Shapley-Shorrocks estimates are calculated for every component. A set of decompositions are calculated all possible orderings and then the average of the results for each component to get the Shapley-Shorrocks estimate of the contribution of each component to changes in poverty (Azevedo et al., 2013).

Source: Refer to Inchauste et al. (2014) for detailed description.

Table A.C.20. **Sources of changes in consumption-based poverty and inequality, 2015–17**

2015-17			Region				Sector of Employment of the Household Head		
	National	BKK	Central	North	Northeast	South	Agriculture	Manufacturing	Services
01 Propensity	-0.83	-0.80	-0.33	-0.96	-1.49	-0.34	-0.90	-0.62	-0.76
02 Share of Adults	-0.18	-0.04	-0.06	-0.23	-0.48	0.13	-0.38	0.21	-0.32
03 Share of Employed	0.32	0.11	0.16	0.58	0.53	0.13	0.19	0.36	-0.03
04 Wages per employed	0.09	0.14	0.04	0.12	0.45	-0.48	0.02	0.85	-0.16
05 Business	0.58	0.78	0.45	0.33	0.69	0.75	0.33	0.28	0.88
06 Farm	0.94	-0.06	0.29	1.91	1.50	0.96	1.88	0.21	0.33
07 Pension	-0.16	-0.17	-0.19	0.06	-0.22	-0.20	0.02	0.11	-0.09
08 Remittance	0.22	-0.18	0.13	0.33	0.30	0.34	0.55	0.13	0.04
09 Assistance	-0.53	-0.22	-0.32	-0.50	-1.05	-0.22	-0.80	-0.19	-0.31
10 Financial, and In-Kind	-0.11	-0.15	-0.24	0.16	-0.10	-0.30	0.08	-0.23	-0.10
11 Total change in poverty rate (consumption-based)	**0.35**	**-0.58**	**-0.05**	**1.80**	**0.14**	**0.77**	**0.99**	**1.13**	**-0.52**
01 Propensity	-0.010	-0.018	-0.076	0.091	-0.006	0.019	0.085	0.076	-0.036
02 Share of Adults	-0.006	0.001	-0.014	-0.018	0.000	0.000	-0.015	-0.010	-0.008
03 Share of Employed	-0.009	-0.005	-0.034	0.004	-0.002	-0.001	-0.032	0.007	-0.001
04 Wages per employed	0.027	0.005	0.102	-0.019	0.001	0.009	0.033	-0.056	0.048
05 Business	0.008	0.027	0.004	-0.001	0.001	0.000	-0.040	0.002	0.004
06 Farm	0.004	0.000	0.007	-0.005	0.005	0.006	0.011	0.009	0.008
07 Pension	0.007	0.000	0.019	0.002	-0.002	0.009	-0.002	0.007	0.000
08 Remittance	0.000	-0.004	0.005	-0.001	-0.004	0.003	-0.007	0.008	0.000
09 Assistance	-0.003	-0.002	-0.002	-0.004	-0.006	-0.001	-0.011	0.004	0.000
10 Financial, and In-Kind	-0.006	-0.007	-0.018	0.011	-0.002	0.001	-0.024	-0.003	-0.014
11 Total change in Gini coefficient	**0.012**	**-0.003**	**-0.004**	**0.062**	**-0.015**	**0.044**	**-0.002**	**0.045**	**0.000**

Source: World Bank author calculations.
Notes: Consumption-based poverty rates.

Table A.C.21. **Sources of changes in income-based poverty and inequality, 2015–17 (without propensity score)**

| 2015-17			Region				Sector of Employment of the Household Head		
	National	BKK	Central	North	Northeast	South	Agriculture	Manufacturing	Services
02 Share of Adults	-0.25	0.04	-0.07	-0.05	-0.55	-0.56	-0.43	0.07	-0.14
03 Share of Employed	0.08	-0.12	0.03	0.18	0.25	-0.09	0.09	-0.05	0.06
04 Wages per employed	-0.12	-1.04	0.33	-0.13	0.22	-0.76	-0.01	-0.26	-0.22
05 Business	0.53	0.95	0.18	0.15	0.96	0.42	0.42	0.39	0.76
06 Farm	0.82	0.15	0.14	1.36	1.48	0.88	2.00	0.21	0.05
07 Pension	-0.05	-0.20	-0.01	-0.02	0.00	-0.14	0.02	-0.04	-0.03
08 Remittance	0.10	0.11	-0.15	0.18	0.14	0.35	0.32	0.17	-0.07
09 Assistance	-0.51	-0.12	-0.33	-0.62	-0.82	-0.53	-0.89	-0.20	-0.20
10 Financial, and In-Kind	-0.07	-0.12	-0.14	-0.04	0.04	-0.26	0.11	-0.25	-0.17
11 Total change in poverty rate (income-based)	**0.51**	**-0.33**	**-0.01**	**1.00**	**1.70**	**-0.69**	**1.62**	**0.04**	**0.04**
02 Share of Adults	-0.002	-0.002	-0.001	0.002	0.000	0.000	0.001	0.000	0.000
03 Share of Employed	-0.003	-0.003	-0.003	-0.001	-0.001	-0.004	0.000	-0.004	0.002
04 Wages per employed	0.002	0.002	0.003	0.003	0.003	-0.001	0.006	-0.002	-0.002
05 Business	0.006	0.006	0.006	0.003	0.003	0.001	0.001	-0.006	0.011
06 Farm	0.005	0.005	0.003	0.006	0.006	0.010	0.010	0.007	0.003
07 Pension	0.002	0.002	0.001	0.004	0.003	0.003	0.001	-0.004	0.000
08 Remittance	0.000	0.000	-0.002	0.002	0.000	0.001	0.001	-0.004	-0.001
09 Assistance	-0.003	-0.003	-0.003	-0.001	-0.005	-0.003	-0.004	-0.005	-0.002
10 Financial, and In-Kind	-0.002	-0.002	-0.002	0.004	-0.001	-0.002	0.000	-0.006	-0.002
11 Total change in Gini coefficient	**0.005**	**0.005**	**0.002**	**0.022**	**0.006**	**0.004**	**0.017**	**-0.025**	**0.009**

Source: World Bank staff calculations.
Notes: Income-based poverty rates

ANNEX E.
THE HUMAN OPPORTUNITY INDEX: TECHNICAL ANNEX

This section introduces the concepts and definitions of the Human Opportunity Index (HOI). The concept of the HOI was first introduced in 2009 (Paes de Barros et al., 2009) as a measurable tool to analyze the inequality of opportunity, and incorporates principles from Roemer (1993, 1998). For detailed descriptions of the HOI, the reader can also refer to the methodological sections in the regional HOI studies conducted for Latin America and Caribbean, Middle East and North Africa, or Sub-Saharan Africa (Paes de Barros et al., 2009; Krishnan et al., 2016; Dabalen et al., 2015).

The figure below illustrates a simple calculation and intuition for the HOI. See Table A.D.22 for definitions and formulas. The HOI is equal to the average coverage rate (C) minus a penalty for the inequity in distribution of an opportunity across groups. Take for example, the proportion of children with a certain opportunity, or the coverage rate (C), (the horizontal line). However, coverage rates vary by groups. For simplicity, we examine just four groups with combinations of two circumstances: location and child gender. The coverage rates for these groups range from 10 to 50 percent. In this example, urban males have the highest coverage rate in an opportunity at 50 percent. This is a simplified example for illustration purposes. When continuous variables are used yielding a large number of groups, regression analysis is used (see Krishnan et al. 2016 for methodological descriptions).

Figure A.D.74. **HOI illustration**
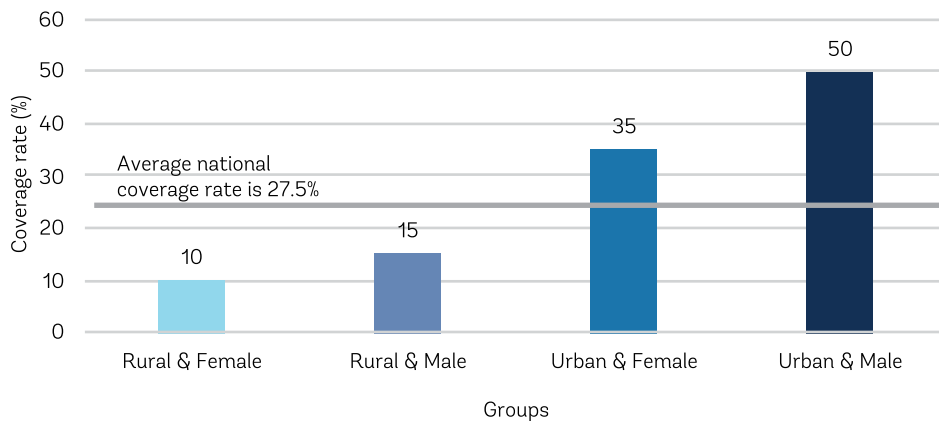
The dissimilarity index is a calculation how many opportunities need to be reallocated for there to be an equal coverage rate of 27.5 percent in each of the four groups. For simplicity, assume that the population in each of the four groups is the same, a quarter in each group. Note that the calculation of the dissimilarity index is directly related to the circumstances chosen. If a different set of circumstances were chosen, the then dissimilarity and hence the HOI would also differ. The dissimilarity index cannot be smaller when more circumstances are included, which means that the HOI cannot be higher.

Dissimilarity index = $\frac{1}{2*27.5}$ * [(0.25 × |27.5-10|) + (0.25 × |27.5-15|) + (0.25 × |27.5-35|) + (0.25 × |27.5-50|)

Dissimilarity index=27.2 percent

The penalty (P) reflects the inequality in coverage rates between children in these four groups.

$$P = C^* D = 7.5 \text{ percent}$$

The HOI is an inequality adjusted coverage rate. Since the dissimilarity index depends on the circumstances selection, the HOI will as well. But the HOI cannot be higher if more circumstances are added, it can be considered an upper bound if society adds more circumstances than what is listed here.

$$HOI = C - P = 27.5 - 7.5 = 20 \text{ percent}$$

It is important to note that the HOI has caveats. Most of these are related to the construction of the dissimilarity index, and hence the HOI by association.

1. By construction, the dissimilarity index is a function of a set of circumstances, and can change if the selected circumstances change. It is unlikely that all circumstances that affect opportunity are included even in the best-case scenarios, so the dissimilarity index measured using survey data should be viewed as a lower bound. And the HOI as an upper bound.

2. Sensitivity of the HOI: the dissimilarity index does not change if there is redistribution among groups who are above the average or groups who are below the average. Only if there is a redistribution between two groups above and below the average.

3. The dissimilarity index is not subgroup consistent. The change in the HOI for the whole population may not be consistent with changes in subgroups of the same population.

The data used to calculate the HOI for Thailand is the 2017 Socio-Economic Survey (SES). The SES is an annual household survey and is used for official estimates of poverty and inequality. From the SES, children's opportunities in education, access to basic infrastructure and assets can be measured. Family and household circumstances in wealth, geography, and parental characteristics are also available. Health variables of children such as stunting, height, and weight are not available. About one-quarter of households have at least one child between the ages of 6 and 14, the most common is one child.

Table A.D.22. **Summary of HOI concepts and definitions**

Concept	Definition
Circumstance	Circumstances are exogenous characteristics of children.
Opportunity	Opportunities for children are defined as access to basic goods and services in education, health, and infrastructure – which are deemed necessary for an individual to realize his/her human potential.
Human Opportunity Index (HOI)	The HOI of an opportunity is its coverage rate (C) minus a penalty (P) due to inequality in coverage rates across children with different sets of circumstances. $$HOI = \bar{C} * (1 - D) = \bar{C} - P$$ Where Č refers to the average coverage rate across the whole population.
Coverage Rate (C)	The incidence of access in a particular opportunity
Dissimilarity Index	The dissimilarity index can be interpreted as the total number of opportunities that need to be reallocated between circumstance groups to ensure equality of opportunities. $$D = \frac{1}{2\bar{C}} \sum_{k=1}^{m} \alpha_k |\bar{C} - C_k|$$ Where there are m circumstance groups indexed from k=1,..., m ▬ is the population share of group k in the population Ē refers to the average coverage rate across the whole population. ▤ is the coverage rate for group
Penalty (P)	A measure that reflects the inequality in coverage rates between children in these four groups and is defined as P= C* D

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